

MICROWAVE SPECTROSCOPY INFORMATION LETTER

VOL. LXI

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Interesting and Informative Websites Maintained by Our Colleagues and Funding Acknowledgement

1. The J. P. L. *Submillimeter, Millimeter, and Microwave Spectral Line Catalog* is accessible via anonymous ftp at spec.jpl.nasa.gov or via our home page at <http://spec.jpl.nasa.gov> Jet Propulsion Laboratory, **Lab 9**.
2. A database "Programs for ROtational SPEctroscopy (PROSPE)" is available at:
<http://info.ifpan.edu.pl/~kisiel/prospe.htm>
A new database on "History of Rotational Spectroscopy" is being constructed at:
<http://info.ifpan.edu.pl/~kisiel/rothist/rothist.html>
A subpage on this Newsletter is at:
<http://info.ifpan.edu.pl/~kisiel/rothist/newsletter.html>
This database depends critically on contributions, which are solicited and accepted at (preferably): prospe@ifpan.edu.pl, **Lab 22**
3. Recommended Rest Frequency Table. F. J. Lovas, *J. Phys. Chem. Ref. Data*, 1-181 (2004). See:
<http://physics.nist.gov/PhysRefData/micro/html/contents.html>
For diatomics, triatomics, and hydrocarbons, see:
<http://physics.nist.gov/PhysRefData/MolSpec/index.html>
A graphic, interactive fitting program, jb95, is available at
<http://physics.nist.gov/Divisions/Div844/facilities/uvs/jb95userguide.htm>
An application and description of the program is found in D. F. Plusquellic et al., *J. Chem. Phys.*, **115** (2001) 3057.
National Institute of Standards and Technology, **Lab 32**.
4. A bibliography of high resolution studies of weakly bound complexes is maintained on the Web at
<http://www.Wesleyan.edu/chem/faculty/novick/vdw.html>
Wesleyan University, **Lab 36**.
5. The Cologne Database for Molecular Spectroscopy is available online at
<http://www.astro.uni-koeln.de/cdms/>
I. Physikalisches Institut, Köln, **Lab 34**.
6. The Hannover FTMW spectrometer control & analysis software is available at
<http://www.pci.uni-hannover.de/~lgpca/spectroscopy/ftmw>
Institut für Physikalische Chemie, Hannover, **Lab 13**.

Garry Grubbs II would like to thank the Missouri University of Science and Technology Chemistry Department and College of Arts, Sciences, and Business for covering the cost of all printing and shipping of this volume of the Microwave Spectroscopy Information Letter.

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<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
CH ₅ NO	Metoxyamine		A&A 609, A24 (2017)
C ₂ H ₄ N ₂	Aminoacetonitrile		ApJ Suppl.Ser.229:26 (2017)
C ₂ H ₆ N ₂ O	Glycinamide ^{b,d}		ms. in preparation
C ₃ H ₆ O ₂	Metoxyacetaldehyde ^a		ms. in preparation
C ₃ H ₄ N ₂ O ₂	Hydantoine		J.Chem.Phys. 147,124312 (2017)
C ₃ H ₅ NO	Ethylisocyanide		ms. in preparation
C ₃ H ₆ O ₂	Metoxyacetaldehyde		ms. in preparation
C ₃ H ₆ O ₂	Lactaldehyde		ms. in preparation
C ₄ H ₆ O ₆	Tartaric Acid		ms. in preparation
C ₄ H ₇ N	Isopropylcynide		ApJ Suppl Series 233:24, 2017
C ₄ H ₇ N ₃ O ₃	Cytosine-water		ms. in preparation
C ₄ H ₈ N ₂ O ₃	Glycylglycine		Angew.Chem.56,6420,(2017)
C ₄ H ₉ NO ₂	Aminoisobutyric Acid		ms. in preparation
C ₄ H ₉ NO ₂	3-Aminobutyric Acid		ms. in preparation
C ₄ H ₉ NO ₂ S	Homocysteine		ms. in preparation
C ₄ H ₉ NO ₃	Homoserine		spectrum assigned

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C ₄ H ₁₀ O ₄	Erythritol		spectrum assigned
C ₅ H ₁₀ N ₂ O ₂	Glutamine		ms. in preparation
C ₅ H ₁₀ N ₂ O ₃	Alanine-Glycine		spectrum assigned
C ₅ H ₁₁ NO	Norvaline		spectrum assigned
C ₅ H ₁₂ O ₅	Ribitol ^c		ms. in preparation
C ₅ H ₁₂ O ₅	Xylitol		spectrum assigned
C ₆ H ₁₀ NO ₂	Pipecolic Acid		ms. in preparation
C ₆ H ₁₂ O ₆	Mannose		ms. in preparation
C ₆ H ₁₄ O ₆	Dulcitol		ms. in preparation
C ₆ H ₁₂ O ₆	Sorbitol		ms. in preparation
C ₆ H ₁₂ O ₆	Manitol		spectrum assigned
C ₇ H ₅ NO ₃ S	Saccharin		ms. in preparation
C ₇ H ₁₂ N ₂ O ₃	Prolylglycine		ms. in preparation
C ₇ H ₁₂ N ₂ O ₃	Glycylproline		ms. in preparation
C ₇ H ₁₄ N ₂ O ₂	Ac-Val-NH ₂		PCCP, 19,24985 (2017)
C ₈ H ₈ O ₄	Dopac		spectrum assigned
C ₉ H ₈ O ₂	Cinnamic Acid		<i>J.Phys.Chem.A</i> ,122,646 (2018)
C ₉ H ₈ O ₃	Coumaric Acid		<i>J.Phys.Chem.A</i> ,122,646 (2018)

In collaboration with:

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^c M.E.Sanz. King's College

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<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
CH ₅ FO	Methylfluoride-H ₂ O	Sharon Priya Gnanasekar Manuel Goubet, Robert Georges	Assigned transitions for hydrogen bond structure. Carbon bonded structure?
CH ₃ ArF (Ar-CH ₃ F)	Argon-methylfluoride	Sharon Priya Gnanasekar Manuel Goubet, Robert Georges	Assigned transitions for a T-shaped structure. Several unassigned lines C---Ar and F—Ar structures?
H ₄ S ₂	H ₂ S dimer	Arijit Das, Chris Medcarft Frank J. Lovas, Pankaj I Mandal	K=1 lines of parent isotopologues, hyperfine H ₂ ³³ S have been assigned. K=0 lines were known for long from unpublished work of Lovas and our group. Manuscript in preparation
C ₃ H ₃ NO ₂	Acetonitrile-CO ₂ Dimer	Sharon Priya Gnanasekar	K = 0 lines of a T-shaped Structure similar HCN-CO ₂ assigned. Several unassigned lines, may be from stacked structure.
H ₄ NeO ₂	Ne-(H ₂ O) ₂	Arijit Das	²⁰ Ne lines of one progression assigned and fitted. Search for ²² Ne lines and other tunneling states in progress

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<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C ₆ H ₈ N ₂ (C ₅ H ₄ N-CH ₂ NH ₂)	2-Picolylamine	R. Bird	Experiments Completed Assignments In Progress
C ₆ H ₈ N ₂ (C ₅ H ₄ N-CH ₂ NH ₂)	3-Picolylamine	R. Bird	Experiments Completed Assignments In Progress
C ₆ H ₈ N ₂ (C ₅ H ₄ N-CH ₂ NH ₂)	4-Picolylamine	R. Bird	Experiments Completed Assignments In Progress
EXPERIMENTAL	Chiral Recognition using 3-wave mixing methods	D. Pratt and B. H. Pate	Experiments in Progress

Lab 4

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FORMULA	NAME OF COMPOUND	NAME OF INVESTIGATOR	PRESENT STAGE OF PROGRESS
C₄H_F₉ (HCF ₂ CF ₂ CF ₂ CF ₃)	1H-Nonafluorobutane	J. Montgomery ¹ H. H. Michels ¹ J. Fournier ² D. Obenchain ³ S. Cooke ⁴	3 Conformers assigned
C₄H₅F₃O₂ (CF ₃ C(=O)OCH ₂ CH ₃)	Ethyl Trifluoroacetate		J Mol Spectroscopy. <u>335</u> (2017) 13-16
C₅H₆O (CH ₃ CH ₂ C≡CC(=O)H)	2-Pentynal (Ethyl formyl acetylene)	S. Cooke ⁴	Heavy Atom Planar, assigned
C₆H₅F₇O₂ (CF ₃ CF ₂ CF ₂ C(=O)OCH ₂ CH ₃)	Ethyl Heptafluorobutyrate	B. Adam ³ D. Obenchain ³	1 Conformer assigned
C₆H₇N (HC≡CCH ₂ CH ₂ CH ₂ C≡N)	5-Hexynenitrile	K. Utzat A. Restrepo ⁵	4 conformers, assigned
C₆H₈O (CH ₃ CH ₂ C≡CC(=O)CH ₃)	3-Hexyne-2-one (Ethyl acetyl acetylene)	S. Stephens ³	Assigned, CH ₃ internal rotation splittings
C₆H₁₄ (CH ₃ CH ₂ CH ₂ CH ₂ CH ₂ CH ₃)	n-Hexane	J. Dombrowski ⁶	TTG conformer assigned
C₇H₁₀ (CH ₃ CH ₂ C≡CC(CH ₃)=CH ₂)	2-Methyl-1-hexene-3-yne	J. Fournier ² S. Stephens ³	Assigned, CH ₃ internal rotation splittings
C₈H₁₀ (CH ₃ CH ₂ C≡C-C≡CCH ₂ CH ₃)	3,5-octadiyne (Diethyl diacetylene)	J. Fournier ² J. Montgomery ¹	Assignment ambiguous Very low barrier
C₉H₆O (C ₆ H ₅ C≡CCHO)	3-Phenyl Propynal (Phenyl formyl acetylene)	R. Bohn	Heavy atom planar, assigned, Tunneling

Lab 4

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C₁₀H₁₀ (C ₆ H ₅ C≡CCH ₂ CH ₃)	1-Phenyl-1-butyne (Phenyl ethyl acetylene)	R. Bohn	Tunneling. Qualitative assignment
C₁₁H₁₂ (C ₆ H ₅ C≡CCH(CH ₃) ₂)	1-Phenyl-3-methyl-1-butyne (Phenyl isopropyl acetylene)	R. Bohn	Tunneling. 2 states. Qualitative assignment.

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Formula	Name of Compound	Name of Investigator	Present Stage of Progress
C ₅ H ₃ ClFN	2-chloro-3-fluoropyridine	Arnold, Chewning, Brown	spectrum assigned
C ₅ H ₃ ClFN	2-chloro-6-fluoropyridine	Arnold, Chewning, Brown	spectrum assigned
C ₅ H ₄ FN-CO ₂	2-fluoropyridine – CO ₂ complex	Brown, Hall, McCarthy(Harvard)	spectrum assigned
C ₆ H ₄ FNO ₂ (C ₅ H ₄ FN-CO ₂)	3-fluoropyridine – CO ₂ complex	Brown, Parks, McCarthy(Harvard)	spectrum assigned
C ₅ H ₄ IN	3-iodopyridine	Gaster, Hall, Brown	spectrum assigned
C ₇ H ₄ F ₂ O (C ₆ H ₃ F ₂ COH)	2,3-difluorobenzaldehyde	Gaster, Parks, Brown	1 conformer assigned
C ₇ H ₄ F ₂ O (C ₆ H ₃ F ₂ COH)	2,6-difluorobenzaldehyde	Gaster, Parks, Brown	spectrum assigned
C ₇ H ₄ F ₂ O (C ₆ H ₃ F ₂ COH)	3,4-difluorobenzaldehyde	Brown, Gaster, McCarthy(Harvard)	JCP, 144 ,124201(2016)
C ₇ H ₄ F ₂ O (C ₆ H ₃ F ₂ COH)	3,5-difluorobenzaldehyde	Gaster, Parks, Yarbroough, Brown	1 conformer assigned
C ₆ H ₃ F ₂ NO ₂ (C ₅ H ₃ F ₂ N-CO ₂)	2,3-difluoropyridine – CO ₂ complex	Gaster, Funderburk, Brown	spectrum assigned

Formula	Name of Compound	Name of Investigator	Present Stage of Progress
$C_{10}H_{12}O_2$	eugenol	Funderburk, Gaster, Brown, Shipman (NCF)	one conformer assigned

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FORMULA	NAME OF COMPOUND	NAME OF INVESTIGATOR	PRESENT STAGE OF PROGRESS
$C_2H_6O_2$ [(CH ₂ OH) ₂]	Ethylene glycol	Morina/ Müller ¹	aGg' excited torsional state
C_3H_6O [(CH ₃) ₂ CO]	Acetone	Christen/ Groner ²	ν_{17} AA, EE, AE
$C_3H_3N_3$ [N=N-N=CH-CH=CH-] _____	1,2,3-Triazine	Morina	Assigned

¹ H.S.P. Müller, I. Physikalisches Institut, Universität zu Köln

² P. Groner, Dept. Chemistry, University of Missouri, MO

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FORMULA	NAME OF COMPOUND	NAME OF INVESTIGATOR	PRESENT STAGE OF PROGRESS
CH ₉ ClF ₃ NO [CClF ₃ ...N(CH ₃) ₃]	trifluorochloromethane...trimethylammonia	Caminati's group ¹ Cocinero's group	Analysis in progress
C ₂ Cl ₃ F ₃ [CF ₃ CCl ₃]	CFC 113a	Cocinero's group Kisiel's group ¹	1 conformer assigned
C ₂ Cl ₄ F ₂ [CCl ₂ FCCl ₂ F]	CFC 112a	Cocinero's group Kisiel's group ²	1 conformer assigned
C ₂ H ₂ ClF ₃ [CF ₃ CH ₂ Cl]	HCFC 133a	Uriarte, Kisiel ² Białkowska-Jaworska ² Pszczółkowski ² Écija Basterretxea Cocinero	J. Mol. Spectrosc., 333 , 37-45 (2017)
CH ₆ F ₂ O ₂ [CH ₂ F ₂ ...(H ₂ O) ₂]	(Difluoromethane)...(Water) ₂	Cocinero's group Melandri's group ¹ Pate's group ³	1 conformer assigned
C ₂ H ₆ F ₄ O [(CH ₂ F ₂) ₂ ...(H ₂ O)]	(Difluoromethane) ₂ ...(Water)	Cocinero's group Melandri's group ¹ Pate's group ³	1 conformer assigned
C ₂ H ₈ F ₄ O ₂ [(CH ₂ F ₂) ₂ ...(H ₂ O) ₂]	(Difluoromethane) ₂ ...(Water) ₂	Cocinero's group Melandri's group ¹ Pate's group ³	1 conformer assigned
C ₅ H ₁₀ F ₁₀ [(CH ₂ F ₂) ₅]	(Difluoromethane) ₅	Cocinero's group Melandri's group ¹ Pate's group ³	1 complex assigned
C ₆ H ₁₂ F ₁₂ [(CH ₂ F ₂) ₆]	(Difluoromethane) ₆	Cocinero's group Melandri's group ¹ Pate's group ³	2 complexes assigned
C ₃ H ₄ Cl ₂ F ₂ O [CHCl ₂ CF ₂ OCH ₃]	Methoxyflurane	Lesarri's group ⁴ Cocinero's group Grabow's group ⁵	Analysis in progress
C ₅ H ₄ ClNO	5-Chloro-2-hidroxipiridine	Calabrese Maris ¹ Uriarte Cocinero Melandri ¹	Chem. Eur. J., 23 , 3595 (2017) Hot paper Front cover

C ₅ H ₄ ClNO	6-Chloro-2-hidroxipiridine	Calabrese Maris ¹ Uriarte Cocinero Melandri ¹	Chem. Eur. J., <u>23</u> , 3595 (2017) Hot paper Front cover
C ₆ H ₅ ClF ₃ N [C ₅ H ₅ N...CF ₃ Cl]	Pyridine...chlorotrifluoromethane	Gou ⁶ Vallejo-López Spada ¹ Staffolani ¹ Lesarri ⁴ Cocinero Caminati ¹	Submitted
C ₅ H ₁₃ NO ₂	2-aminopentano-1,3-diol	Cocinero's group Lesarri's group ⁴	In preparation
C ₆ H ₆ N ₂ O [C ₅ NH ₄ CONH ₂]	Nicotinamide	Caminati's group ¹ Cocinero's group Lesarri's group ⁴	In preparation
C ₆ H ₁₀ O ₅	Levoglucosan	Uriarte Écija Lozada-García ⁷ Çarçabal ⁷ Cocinero	ChemPhysChem., <u>in press</u> , (2018)
C ₆ H ₁₂ O	Oxacycloheptene	Lesarri's group ⁴ Grabow's group ⁵ Cocinero's group	In preparation
C ₆ H ₁₂ O ₄ [CH ₂ (OH)CH ₂ (CHOH) ₂ COCH ₃]	Methyl-α-2-deoxyribofuranoside	Cocinero's group	In preparation
C ₆ H ₁₂ O ₄ [CH ₂ (OH)CH ₂ (CHOH) ₂ COCH ₃]	Methyl-β-2-deoxyribofuranoside	Cocinero's group	In preparation
C ₆ H ₁₂ O ₄ [CH ₂ (OH)CH ₂ (CHOH) ₂ COCH ₃]	Methyl-α-2-deoxyribopyranoside	Cocinero's group	In preparation
C ₆ H ₁₂ O ₄ [CH ₂ (OH)CH ₂ (CHOH) ₂ COCH ₃]	Methyl-β-2-deoxyribopyranoside	Cocinero's group	In preparation
C ₆ H ₁₁ FO ₅	fluorodesoxiglucosa	Cocinero's group	2 conformers assigned
C ₆ H ₁₂ O ₅	2-deoxyglucose	Cocinero's group	3 conformers assigned
C ₇ H ₆ N ₂	Indazole	Cocinero's group	r ₀ , r _S , r _m , r _e ^{SE} in progress
C ₉ H ₁₅ NO	Pseudopelletierine	Vallejo-López Écija Vogt ⁸ Demaison ⁸ Lesarri ⁴ Basterretxea Cocinero	Chem. Eur. J., <u>23</u> , 16491-16496 (2017) Hot paper Front cover
C ₁₀ H ₁₀ O ₂ [C ₆ H ₅ CHCHCOOCH ₃]	Methyl cinnamate	Cocinero's group Lesarri's group ⁴	2 conformers assigned
C ₁₀ H ₁₂ O ₃ [HOC ₆ H ₃ (OCH ₃)CHCH ₂ CH ₂ OH]	Coniferyl alcohol	Cocinero's group Lesarri's group ⁴	In preparation
C ₁₀ H ₁₄ O ₃ [HOC ₆ H ₃ CH ₂ CH ₂ CH(CO)CH ₃]	Zingerone	Cocinero's group Lesarri's group ⁴	In preparation
C ₁₀ H ₁₂ N ₂ O	Cotinine	Uriarte Pérez ⁹ Caballero ⁴ Basterretxea Lesarri ⁴ Fernández Cocinero	Chem. Eur. J., <u>23</u> , 7238-7244 (2017) Hot paper Front cover
C ₁₁ H ₁₅ NO ₂ [NH ₂ C ₆ H ₄ COO(CH ₂) ₃ CH ₃]	Butamben	Lesarri's group ⁴ Caminati's group ¹ Cocinero's group Grabow's group ⁵	In preparation
C ₁₁ H ₁₅ NO ₂ [NH ₂ C ₆ H ₄ COOCH ₂ CH(CH ₃) ₂]	Isobutamben	Lesarri's group ⁴ Cocinero's group	In preparation

Lab 7

C ₁₂ H ₂₂ O ₂	Oxacyclotridecan-2-one	Cocinero's group Melandri's group ¹	2 conformer assigned
C ₁₃ H ₂₀ O	α-ionone	Cocinero's group Melandri's group ¹	J. Phys. Chem. Lett., <u>9</u> , 1497-1502 (2018)
C ₁₃ H ₂₀ O	β-ionone	Cocinero's group Melandri's group ¹	J. Phys. Chem. Lett., <u>9</u> , 1497-1502 (2018)
C ₁₃ H ₂₀ O	β-damascone	Cocinero's group Melandri's group ¹	J. Phys. Chem. Lett., <u>9</u> , 1497-1502 (2018)
C ₁₃ H ₂₀ O ₃	Methyl-jasmonate	Cocinero's group Kleiner's group ¹⁰	In preparation
C ₁₅ H ₁₂ O ₂ [C ₆ H ₅ COCH ₂ COC ₆ H ₅]	Dibenzoylmethane	Cocinero's group Caminati's group ¹	1 conformer observed

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<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
O ₃ U	Uranium (VI) oxide	B. E. Long [‡]	Spectrum observed.
O ₂ Th	Thorium (IV) oxide	B. E. Long [‡]	Spectrum observed.
C ₅ H ₂ F ₈	Cis-1H,2H-Perfluorocyclopentane	A. J. Minei [□]	Parent and minor isotopologues observed and assigned. Manuscript in prep
C ₅ H ₃ F ₇	1H,1H,2H-Perfluorocyclopentane	A. J. Minei [□]	Parent and minor isotopologues observed and assigned. Manuscript in prep
C ₄ HF ₉	2H-Nonafluorobutane		Parent and minor isotopologues observed and assigned
C ₅ Cl ₂ F ₆	1,2-dichlorohexafluorocyclopentene-1		Spectrum assigned
C ₆ Cl ₂ F ₈	1,2-dichlorooctafluorocyclohexene-1		Spectrum assigned
C ₉ H ₁₈	1-Nonene	G. T. Fraser [*] , R. D. Suenram [†] , C. T. Dewberry, K. C. Etchison, G. S. Grubbs II [•] .	Dominant conformer assigned.

$C_{10}H_{20}$	1-Decene	G. T. Fraser [*] , R. D. Suenram [†] , C. T. Dewberry, K. C. Etchison, G. S. Grubbs II [•] .	Dominant conformer assigned.
C_3F_5ClO	Chloropentafluoro acetone	W. C. Bailey ^Δ	Manuscript in preparation
$C_3F_4Cl_2O$	1,3-Dichlorotetrafluoro acetone		Manuscript in preparation
$C_3H_2F_3ClO$	1,1,1-Trifluoro-3-chloroacetone		Manuscript in preparation
$C_3H_4F_2O$	1,1-Difluoroacetone	P. Groner [−] L. Margulès, R. Motiyenko [§]	CP-FTMW Spectrum Assigned mmW spectrum recorded.
C_3H_5ClO	Chloroacetone	B. E. Long [⊥]	Spectrum assigned
C_3F_5N	Perfluoropropionitrile	B. E. long [⊥]	Spectrum Assigned
BaS	Barium Monosulfide	G. S. Grubbs II [•]	Hyperfine structure, $J = 1 - 0, 2 - 1$ in high vibrational states.
C_3F_6NH	Hexafluoroacetone imine	G. S. Grubbs II [•] , D. Obenchain [⊥] , D. Frohman, S. E. Novick [⊥] , W. C. Pringle [⊥]	Spectrum assigned
C_4F_9I	Perfluoroiodobutane	G. S. Grubbs II [•] , R. Bohn	Manuscript in preparation
$C_4F_3H_6I$	3-Iodo-1,1,1-trifluorobutane	W. C. Bailey ^Δ	CP-FTMW spectrum assigned
C_3F_7HO	1,2,2,2-Tetrafluoroethyl trifluoromethyl ether	A. Turk	Spectrum assigned
$C_5F_7H_3O_2$	2,2,3,3-Tetrafluoropropyl trifluoroacetate		Spectrum assigned
$C_4H_7ClF_2O$	1-chloro-1,1-difluoro-2-methyl-2-propanol		Spectrum assigned

$C_3H_4F_3I$	1,1,1-trifluoro-3-iodopropane	W. C. Bailey ^Δ	Manuscript in preparation
$C_3H_2F_5I$	1,1,1,2,2-pentafluoro-3-iodopropane	W. C. Bailey ^Δ	Manuscript in preparation
$C_7H_{13}N$	1-dimethylamino-2-pentyne	B. E. Long [‡] , D. Obenchain [⊥] , R. Bohn [♦]	Spectrum assigned
$C_{10}F_{19}N$	Perfluorodecanonitrile	A. J. Minei [□]	Spectrum observed
$C_3H_6F_3N$	1,1,1-Trifluoro-3-azapent-3-ene	C. T. Dewberry	Spectrum assigned
$C_5H_{11}F$	1-Fluoropentane	D. Obenchain [⊥]	Spectrum Assigned
$C_6H_{13}F$	1-Fluorohexane	D. Obenchain [⊥]	Spectrum Assigned
$C_7H_{15}F$	1-Fluoroheptane	D. Obenchain [⊥]	Spectrum Assigned
$C_8H_{17}F$	1-Fluorooctane	D. Obenchain [⊥] , W. Orellana [⊥]	Spectrum Assigned
$C_5H_{12}S$	Butyl methyl thioether	J. Ogulnick, T. Holmes	Spectrum Assigned
$C_6H_{14}S$	Pentyl methyl thioether	J. Ogulnick, T. Holmes	Spectrum Assigned
$C_2H_3F_5S$	Vinyl pentafluorosulfur	W. Orrellana [†] , S. Stephens [⊥] , W. C. Pringle [⊥] , S. Novick [⊥] , P. Groner [⊥]	4-fold internal rotor problem analyzed. Manuscript in preparation.
$C_3H_5F_5S$	Propene-1-yl pentafluorosulfur	W. Orrellana [†] , S. Stephens [⊥] , S. Novick [⊥]	4-fold internal rotor problem analyzed. Manuscript in preparation.
$C_4H_7F_5S$	Butene-1-yl pentafluorosulfur	W. Orrellana [†] , S. Stephens [⊥] , S. Novick [⊥]	4-fold internal rotor problem analyzed. Manuscript in preparation.

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<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
BF ₂ HO (BF ₂ OH)	Hydroxyldi uoroborane	Drouin, Fry	mm and submm spectra recorded, analyzed
BrO	Bromine monoxide	Nemchick, Drouin, Yu	THz data collected, analyzed
CCl ₂ O (COCl ₂)	Carbonyl chloride (phosgene)	Drouin	Millimeter wave spectra analyzed, spectra for mixed isotopomer.
CH ₃ DO (CH ₂ DOH)	Deuterated methanol	Pearson, Yu, Drouin	ext. J,K analysis in progress
CH ⁺	Methylidyne	Yu, Amano, Pearson, Drouin	isotopic and main species data up to 2.5 THz, manuscript prepared
CHN (HCN)	Hydrogen cyanide	Pearson, Yu, J. Cernicharo	vib. excited rotational data recorded, analyzed
CH ₃ NO ₃	Methyl nitrate	Drouin, Xhang	submm data acquired, assigned
CH ₄	methane	Drouin	2.5-2.7 THz spectra for ¹² C, ¹³ C, gs, 4 4
ClH (HCl)	Hydrogen Chloride	Gupta, Drouin, Pearson	THz spectra to v = 8
ClO	Chlorine Monoxide	Cohen, Drouin, L. Du y (UNC-Greensboro)	rotational data to v = 8, analysis complete
ClH ₂ ⁺ (H ₂ Cl ⁺)	Chloronium	Gupta, Drouin, Pearson	THz spectra recorded.
CO ₂	Carbon Dioxide (¹⁸ OCO)	Drouin, B. Elliott	isotopic measurements 0.5-0.6 THz
C ₂ HD (HCCD)	Deuterated acetylene	Yu, Drouin, A. Walters (CESR)	THz spectra measured, assigned
C ₃ H ₅ N (CH ₃ CH ₂ CN)	Propionitrile (ethyl cyanide)	Pearson, Daly, Alonzo (UVallalodid), Yu	excited vibrational analyses in progress
C ₃ H ₆ O (CH ₂ CHCH ₂ OH)	Allyl alcohol	Drouin and Pearson	Two conformers identified at room temperature and assigned in submillimeter.
C ₄ H ₅ N (CH ₃ CHCHCN)	Crotononitrile	Drouin and Pearson	Cis and trans conformations assigned up to 480 GHz.
H ¹⁵ NO ₂	Nitrous acid	Drouin & Miller	submillimeter spectra recorded,

assigned.

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
H ₂ O	water (¹⁷ O & ¹⁸ O)	Yu, Drouin, Pearson, Walters (CNRS)	measurements through 2.6 THz ¹⁶ O ms in prep ¹⁷ O ms in prep
H ₂ N ¹⁵ NO ₂	Amidogen Nitrogen dioxide	Müller (Köln), Drouin Miller, Drouin	data up to 2.7 THz gs analysis complete, excited vibrational state analysis in progress.
O ₂ S (SO ₂)	Sulfur dioxide	Drouin	Temperature dependent air pressure broadening.
HO ₂	Hydroperoxyl radical	Drouin	N ₂ and O ₂ temperature dependent pressure broadening.

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<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
H ₄ O ₂ (H ₂ O-H ₂ O)	water dimer	W. Caminati et al.	High J, high K transitions observed
CClF ₃ Kr (CCl ₃ -Kr)	chlorotrifluoromethane krypton complex	L. Evangelisti et al.	Asymmetric top spectrum
CH ₂ ClFNe (CH ₂ ClF-Ne)	chlorofluoromethane neon complex	P. Ottaviani et al. ISMN	Spectrum observed, dynamics
CH ₂ F ₂ Ne (CH ₂ F ₂ -Ne)	difluoromethane neon complex	S. Melandri et al.	Spectrum assigned, dynamics
CH ₃ F ₄ N (CF ₄ -NH ₃)	tetrafluoromethane ammonia complex	L. Evangelisti et al.	Symmetric top, tunneling
CH ₄ F ₃ N (CHF ₃ -H ₃ N)	trifluoromethane ammonia complex	B.M. Giuliano et al.	mmw measurements
CH ₆ O ₂ (CH ₃ OH-H ₂ O)	methanol water complex	S. Melandri et al.	High J, high K transitions observed
C ₂ F ₄ O (CF ₄ -CO)	tetrafluoromethane carbon monoxide complex	L. Evangelisti et al.	Spectrum assigned, symmetric top
C ₂ F ₃ KrN (C ₂ F ₃ N-Kr)	trifluoroacetonitrile krypton complex	L. Evangelisti et al.	Symmetric top
C ₂ H ₂ F ₄ O (C ₂ F ₄ -H ₂ O)	tetrafluoroethene water complex	Q. Gou et al. CQU	Spectrum recorded

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
$C_2H_3F_3Cl_2$ (CH_3Cl-CF_3Cl)	chloromethane chlorotrifluoromethane complex	W. Li et al.	Spectrum assigned
$C_2H_3F_3O$ (CHF_3-CH_2O)	trifluoromethane formaldehyde complex	Q. Gou et al. UVA, UPV, CQU	1 conformer, 4 states
$C_2H_4Cl_2F_2$ ($CH_2ClF-CH_2ClF$)	chlorofluoromethane dimer	W. Caminati et al. ISMN	Weak H-bond, manuscript in preparation
C_2H_4NeO (C_2H_4O-Ne)	oxirane neon complex	S. Melandri et al. PhLAM	Spectrum assigned, dynamics
C_2H_3DO ($CHDO_2-CH_2O_2$) ($CD_2O_2-CH_2O_2$) ($CHDO_2-CHDO_2$)	formic acid dimer	W. Li et al.	Proton transfer, manuscript in preparation
$C_2H_6Cl_2Ge$	dichlorodimethylgermane	P. Ottaviani et al. PCI	Internal rotation, quadrupole
$C_2H_6Cl_2Sn$	dichlorodimethylstannane	P. Ottaviani et al. PCI	Spectrum assigned
C_2H_7ClO (C_2H_6O-HCl)	dimethylether hydrogen chloride complex	W. Caminati et al. UVA, SU	Hyperfine structure
$C_2H_7NO_3$ ($C_2H_5NO_2-H_2O$)	glycolamide water complex	A. Maris et al.	Spectrum assigned
$C_2H_8N_2O_2$ ($C_2H_5NO_2-H_3N$)	glycolamide ammonia complex	A. Maris et al.	Spectrum assigned
$C_2H_8O_2$ ($C_2H_6O-H_2O$)	dimethylether water complex	W. Caminati et al. SU	Manuscript in preparation
$C_2H_8O_2$ (CH_4O-CH_4O)	methanol dimer	S. Melandri et al.	High J, high K transitions observed
C_3ClF_7 ($C_2F_4-CClF_3$)	tetrafluoroethene chlorotrifluoromethane complex	G. Feng et al. CQU	Spectrum recorded
C_3F_3NO (C_2F_3N-CO)	trifluoroacetonitrile carbon monoxide complex	L. Evangelisti et al.	Symmetric top

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C_3H_5N	propargylamine	M. Melosso et al. UBO	Isotopologues assigned
$C_3H_5NO_2$	1,3-oxazolidin-2-one	A. Maris et al.	Spectrum assigned, tunnelling
$C_3H_6N_2O$	ethylene urea	A. Vigorito et al.	Spectrum assigned, tunneling
$C_3H_6F_4O$ ($C_2H_6O-CF_4$)	dimethylether tetrafluoromethane complex	L. Evangelisti et al. ISMN	1 conformer, 4 states
$C_3H_6O_2$	1,3-dioxolane	A. Maris et al. UBO	Splittings in various states
$C_3H_6O_3$ ($C_3H_4O_2-H_2O$)	acrylic acid water complex	A. Maris et al. ISMN	2 conformers, 9 isotopologues
$C_3H_7F_3O$ ($C_2H_6O-CHF_3$)	dimethylether trifluoromethane complex	W. Caminati et al. EIU	H-bond, dynamics
C_3H_7NO ($C_3H_5N-H_2O$)	propargylamine water complex	A. Maris et al.	Spectrum assigned
$C_3H_7NO_3$ ($C_3H_5NO_2-H_2O$)	1,3-oxazolidin-2-one water complex	A. Maris et al.	Spectrum assigned, tunnelling
$C_3H_8N_2O_2$ ($C_3H_6N_2O-H_2O$)	ethyleneurea water complex	A. Maris et al.	Spectrum assigned
$C_4H_4O_4$ ($C_3H_4O_2-CO_2$)	acrylic acid carbon dioxide complex	A. Maris	2 conformers assigned
$C_4H_4F_4O_4$	<i>alpha, alpha</i> -difluoroacetic acid dimer	Q. Gou et al. CQU	4 states, proton tunneling
$C_4H_6O_4$ ($C_2H_4O_2-CH_2O_2$)	<i>beta</i> -propiolactone formic acid complex	L. Evangelisti et al. UVA	Spectrum assigned
$C_4H_6F_4O$ ($C_2H_6O-C_2F_4$)	dimethylether tetrafluoroethene complex	L. Evangelisti et al.	Spectrum recorded

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C ₄ H ₇ NO	2-pyrrolidinone	A. Maris et al.	Spectrum assigned, ND species
C ₄ H ₇ NO (C ₃ H ₃ N-CH ₄ O)	acrylonitrile methanol complex	C. Calabrese et al.	Manuscript in preparation
C ₄ H ₇ NO ₂	3-methyl-1,3-oxazolidin-2-one	A. Maris et al.	Spectrum assigned, tunnelling, V ₃
C ₄ H ₈ O	1-methylcyclopropanol	W. Li et al. UPV	Spectrum assigned, tunneling
C ₄ H ₈ O ₂	isopropylformate	L. Spada et al. ISMN	Spectrum assigned
C ₄ H ₉ NO ₂ (C ₄ H ₇ NO-H ₂ O)	2-pyrrolidinone water complex	A. Maris et al.	Spectrum assigned, ND species
C ₄ D ₈ O	tetrahydrofuran- <i>d</i> ₈	A. Maris et al. UVA, RM	Pseudorotation splittings
C ₄ H ₉ ClF ₃ N (CClF ₃ -C ₃ H ₉ N)	chlorotrifluoromethane trimethylamine complex	L. Evangelisti et al. UPV	Halogen bond
C ₄ H ₁₀ N ₂ O ₄ (C ₂ H ₅ NO ₂) ₂	nitroethane dimer	W. Li et al.	Spectrum recorded
C ₄ H ₁₀ O ₂	1,2-butanediol	A. Vigorito et al.	6 conformers, OD & ¹³ C species
C ₄ H ₁₀ O ₃	trimethoxymethane	G. Feng et al. LISA	3 conformers assigned
C ₄ H ₁₀ S ₂	1,4-butanedithiol	A. Vigorito et al.	4 conformers assigned
C ₅ H ₅ F ₃ NO (C ₅ H ₃ F ₃ N-H ₂ O)	2,4,6-trifluoropyridine water complex	C. Calabrese et al.	Spectrum observed
C ₅ H ₅ F ₂ NO (C ₅ H ₃ F ₂ N-H ₂ O)	3,5-difluoropyridine water complex	C. Calabrese et al.	1 conformer, internal motion
C ₅ H ₅ F ₂ NO (C ₅ H ₃ F ₂ N-H ₂ O)	2,6-difluoropyridine water complex	C. Calabrese et al.	1 conformer, internal motion
C ₅ H ₈ O ₂	acetylacetone	W. Caminati et al. PCI, KU	Deuterated species

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C ₅ H ₁₀ O ₃ (C ₄ H ₈ O-CH ₂ O ₂) (C ₄ H ₈ O-CHDO ₂)	1-methylcyclopropanol formic acid complex	W. Li et al.	Spectrum assigned
C ₅ H ₁₀ O ₄ (C ₄ H ₈ O ₂ -CH ₂ O ₂)	formic acid isopropylformate complex	L. Evangelisti et al.	Spectrum assigned
C ₅ H ₁₂ O	2-methyl-2-butanol	L. Spada et al. ISMN	5 conformers assigned
C ₅ H ₁₂ O ₃ (CH ₂ O ₂ -C ₄ H ₁₀ O)	formic acid <i>tert</i> -butanol complex	L. Evangelisti et al.	Spectrum assigned, tunneling
C ₅ H ₁₄ N ₂ O ₂ (N(CH ₃) ₃ -C ₂ H ₅ NO ₂) (¹⁵ N(CH ₃) ₃ -C ₂ H ₅ NO ₂)	trimethylamine nitroethane complex	L. Spada et al. UBO, SNS	Manuscript in preparation
C ₆ H ₃ F ₆ N (C ₆ F ₆ -NH ₃) (C ₆ F ₆ - ¹⁵ NH ₃)	hexafluorobenzene ammonia complex	S. Melandri et al. ISMN	Spectrum assigned
C ₆ H ₅ ClF ₃ N (C ₅ H ₅ N-CClF ₃)	pyridine chlorotrifluoromethane complex	Q. Gou et al. CQU	Halogen bond
C ₆ H ₇ NO ₂ S	benzenesulfonamide	S. Melandri et al. KCL	Spectrum assigned, ND species
C ₆ H ₈ N ₂ O ₂ S	sulfanilamide	A. Vigorito et al. KCL	Spectrum assigned
C ₆ H ₉ NO (C ₅ H ₅ N-CH ₄ O)	pyridine methanol complex	L. Evangelisti et al.	Spectrum assigned
C ₆ H ₁₀ N ₂ (C ₃ H ₅ N-C ₃ H ₅ N)	propargylamine dimer	L. Spada et al. UBO	Spectrum assigned
C ₆ H ₁₂ F ₃ N (C ₅ H ₁₁ N-CHF ₃)	<i>N</i> -methylpyrrolidine trifluoromethane complex	L. Evangelisti et al.	H-bond, internal rotation
C ₆ H ₁₂ O	<i>cyclo</i> -hexanol	W. Li et al. UVA	2 conformers assigned
C ₆ H ₁₂ O	<i>cis</i> -3-hexen-1-ol	S. Melandri et al.	Spectrum recorded
C ₆ H ₁₂ O ₂	<i>trans</i> -1,2-cyclohexanediol	W. Caminati et al.	Spectrum assigned, OD species

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C ₆ H ₁₄ O ₃ (C ₂ H ₆ O-C ₄ H ₈ O ₂)	ethanol 1,4-dioxane complex	L. Evangelisti et al.	1 conformer observed
C ₇ F ₆ O (C ₆ F ₆ -CO)	hexafluorobenzene carbon monoxide complex	W. Li et al.	Spectrum assigned
C ₇ H ₆ F ₂ O	3,5-difluorobenzylalcohol	L. Evangelisti et al.	Spectrum assigned, tunnelling
C ₇ H ₆ F ₂ O	2,6-difluorobenzylalcohol	L. Evangelisti et al.	Spectrum assigned, tunnelling
C ₇ H ₉ NO ₂ S	<i>p</i> -toluenesulfonamide	C. Calabrese et al. KCL	3 species assigned
C ₇ H ₉ NO ₂ S	<i>o</i> -toluenesulfonamide	A. Vigorito et al. KCL	Spectrum assigned, V ₃
C ₇ H ₁₁ NO (C ₇ H ₉ N-H ₂ O)	benzylamine water complex	S. Melandri et al.	1 conformer
C ₇ H ₁₂ O ₂	3,5-heptanedione	L. Evangelisti et al.	2 conformers
C ₇ H ₁₄ O ₃ (C ₇ H ₁₂ O ₂ -H ₂ O)	3,5-heptanedione water complex	W. Li et al.	2 conformers
C ₇ H ₁₂ O ₂	<i>cyclo</i> -hexylformate	L. Evangelisti et al.	1 conformer
C ₈ H ₈ O	<i>p</i> -tolualdehyde	W. Caminati et al. PCI, LISA, NIST	V ₃ & V ₆
C ₈ H ₈ O ₂	phenyl acetate	W. Caminati et al.	Spectrum assigned
C ₈ H ₁₀ FN	<i>p</i> -fluorophenylethylamine	S. Melandri et al.	2 conformers assigned
C ₈ H ₁₆ O	1-octen-3-ol	A. Maris et al.	2 conformers assigned
C ₈ H ₁₈ N ₂ (C ₄ H ₉ N-C ₄ H ₉ N)	pyrrolidine dimer	A. Maris et al. ISMN	Spectrum assigned
C ₉ H ₁₅ NO (C ₅ H ₅ N-C ₄ H ₁₀ O)	pyridine <i>tert</i> -butanol complex	L. Spada et al. UPV	Manuscript in preparation
C ₁₀ H ₁₂ O ₂	eugenol	A. Maris et al.	Spectrum assigned

CQU Chongqing School of Chemistry and Chemical Engineering, Chongqing University (RPC)

EIU Department of Chemistry, Eastern Illinois University (USA)

ISMN Istituto per lo Studio dei Materiali Nanostrutturati, CNR Sezione di Bologna (I)

KCL King's College London (UK)
KU Department of Chemistry, University of Copenhagen (DK)
LISA Laboratoire Inter-Universitaire des Systemes Atmospheriques, Université Paris Est Creteil (F)
NIST [National Institute of Standards and Technology](#) (USA)
PCI Institut für Physikalische Chemie & Elektrochemie, Universität Hannover (D)
PhLAM Laboratoire de Physique des Lasers, Atoms and Molecules, Villeneuve d'Ascq (F)
RM Rolf Meyer, Zufikon (CH)
SU Department of Chemistry, Shizuoka University (J)
UPV Departamento de Química Física, Universidad del País Vasco, Leioa (E)
UVA Departamento de Química Física, Universidad de Valladolid (E)
UBO Department of Chemistry, University of Bologna (I)

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<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
$C_5H_{11}NO$ (HCONHC(CH ₃) ₃)	N-tert-Butylformamide	Masaharu Fujitake	Manuscript in prep. Z, E-form
$C_5H_{13}NO_2$ ($C_5H_{11}NO \cdot H_2O$)	N-tert-Butylformamide -water	Masaharu Fujitake	Manuscript in prep. Two conformers
$C_5H_{15}NO_3$ ($C_5H_{11}NO \cdot H_4O_2$)	N-tert-Butylformamide -(water) ₂	Masaharu Fujitake	Manuscript in prep.
$C_6H_{15}NO_2$ ($C_5H_{11}NO \cdot CH_3OH$)	N-tert-Butylformamide -methanol	Masaharu Fujitake	Manuscript in prep. Two conformers
$C_6H_{14}N_2O_2$ ($C_5H_{11}NO \cdot HCONH_2$)	N-tert-Butylformamide -formamide	Masaharu Fujitake	Spectrum assigned. formamide- ¹⁵ N
$C_4H_{11}NO_2$ ($C_4H_9NO \cdot H_2O$)	N,N-Dimethylacetamide -water	Masaharu Fujitake	Spectrum assigned. V ₃ of 3 methyl tops
$C_4H_{10}O_4$ ($C_4H_8O_3 \cdot H_2O$)	Methyl lactate-water	Masaharu Fujitake	Manuscript in prep. Three conformers
$C_4H_{12}O_5$ ($C_4H_8O_3 \cdot (H_2O)_2$)	Methyl lactate-(water) ₂	Masaharu Fujitake	Spectrum assigned. Two conformers

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C ₅ H ₁₂ O ₅ (C ₄ H ₈ O ₃ -CH ₃ OH)	Methyl lactate-methanol	Masaharu Fujitake	Spectrum assigned.
C ₃ H ₄ D ₃ NO (CH ₃ CONHCD ₃)	N-methylacetamide(NCD ₃)	Masaharu Fujitake	Spectrum assigned.
C ₃ H ₆ DNO (CH ₃ CONDCH ₃)	N-methylacetamide(ND)	Masaharu Fujitake	Spectrum assigned.
C ₃ H ₄ D ₃ NO (CD ₃ CONHCH ₃)	N-methylacetamide(CCD ₃)	Masaharu Fujitake	Spectrum assigned.
C ₃ H ₉ NO ₂ (C ₃ H ₇ NO-H ₂ O)	N-methylacetamide-water	Masaharu Fujitake	Spectrum assigned. Two conformers
C ₃ H ₆ D ₃ NO ₂ (CD ₃ CONHCH ₃ -H ₂ O)	N-methylacetamide(CCD ₃) -water	Masaharu Fujitake	Spectrum assigned.
C ₃ H ₆ D ₃ NO ₂ (CH ₃ CONHCD ₃ -H ₂ O)	N-methylacetamide(NCD ₃) -water	Masaharu Fujitake	Spectrum assigned.
C ₃ H ₉ NO ¹⁸ O (CH ₃ CONHCH ₃ -H ₂ ¹⁸ O)	N-methylacetamide -(H ₂ ¹⁸ O)water	Masaharu Fujitake	Spectrum assigned.
C ₃ H ₇ D ₂ NO ₂ (CH ₃ CONHCH ₃ -D ₂ O)	N-methylacetamide -(D ₂ O)water	Masaharu Fujitake	Spectrum assigned.
C ₃ H ₈ DNO ₂ (CH ₃ CONHCH ₃ -DOH)	N-methylacetamide -(DOH)water	Masaharu Fujitake	Spectrum assigned.
C ₃ H ₈ DNO ₂ (CH ₃ CONHCH ₃ -HOD)	N-methylacetamide -(HOD)water	Masaharu Fujitake	Spectrum assigned.

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
$C_3H_8O_4$ ($C_3H_6O_3-H_2O$)	Methyl glycolate-water	Masaharu Fujitake	<i>J. Mol. Spectrosc.</i> , 343 (2018) 3-7.
$C_3H_{10}O_5$ ($C_3H_6O_3-(H_2O)_2$)	Methyl glycolate-(water) ₂	Masaharu Fujitake	Spectrum assigned.
$C_4H_{10}O_4$ ($C_3H_6O_3-CH_3OH$)	Methyl glycolate-methanol	Masaharu Fujitake	Spectrum assigned.
$C_4H_{11}NO$ ($NH_2CH_2C(CH_3)_2OH$)	1-amino-2-methyl-2-propanol	Masaharu Fujitake	Spectrum assigned.
$C_4H_{13}NO_2$ ($NH_2CH_2C(CH_3)_2OH-H_2O$)	1-amino-2-methyl-2-propanol -water	Masaharu Fujitake	Spectrum assigned. Two conformers

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<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
$C_2H_3F_5O$ ($CF_3CF_2H-H_2O$)	pentafluoroethane–water complex	Q.Gou, G.Feng ^{1,2,3}	Manu. Submitted
$C_2H_4F_4O$ ($CF_3CFH_2-H_2O$)	1,1,1,2-tetrafluoroethane–water complex	X. Li ²	spectra recorded
$C_3H_4F_4O_2$ ($CF_3CFH_2-HCOOH$)	1,1,1,2-tetrafluoroethane–formic acid complex	Y. Jin	spectra recorded
$C_2H_4F_2O_2$ ($CF_2H_2-HCOOH$)	Difluoromethane–formic acid complex	Y. Jin	Manu. Ready
$C_7H_7F_3OS$ ($CF_3SC_6H_5-H_2O$)	Trifluorothioanisole–water complex	Y. Jin	Spectra recorded
C_5HF_4N (2,3,4,6- FC_6H)	2,3,4,6-Tetrafluoropyridine	J. Wang	spectra assigned, ¹³ C and ¹⁵ N isotopologues
$C_6H_4F_3N$ (2- CF_3 pyridine)	2-trifluoromethylpyridine	X. Li	spectra assigned, ¹³ C and ¹⁵ N isotopes
$C_3H_6F_2O$ ($CH_3CHF_2-H_2O$)	Difluoroethane–water complex	J. Chen	spectra recorded
$C_2H_5ClF_2O$ ($CH_3CClF_2-H_2O$)	1,1,1-Chlorodifluoroethane–water complex	J. Chen	Spectra recorded, analysis in progress
$C_2H_2ClF_5O$ ($CF_3CClF_2-H_2O$)	Chloropentafluoroethane–water complex	J. Chen	spectra assigned
$C_5H_5F_2NO$ ($C_5H_3F_2N-H_2O$)	2,3-difluoropyridine–water complex	J. Wang	manuscript ready for submit ¹⁸ O, D ₂ O, DOH, HOD isotopes

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
$C_5H_5F_2NO$ ($C_5H_3F_2N-H_2O$)	2,6-difluoropyridine–water complex	J. Wang	Manuscript in preparation ^{18}O , D_2O , DOH, HOD isotopes
$C_5H_2F_3N$ (2,3,6- FC_6H_2)	2,3,6-Trifluoropyridine	J. Chen	manuscript submitted
$C_5H_4F_3NO$ ($C_5H_2F_3N-H_2O$)	2,3,6-Trifluoropyridine–water complex	J. Wang	Manuscript in preparation, ^{18}O , D_2O , DOH, HOD isotopes
$C_6H_4F_5N$ (2,3,6- $FC_6H_2-CH_2F_2$)	2,3,6-Trifluoropyridine–difluoromethane complex	J. Wang	spectra recorded
$C_7H_5ClF_3N$ ($C_5H_5N-CClF_2CF_2$)	Pyridine–chlorotrifluoroethene complex	Y. Zheng	spectra recorded
C_2ArClF_3 ($CClF_2CF_2-Ar$)	chlorotrifluoroethene–Ar complex	Y. Zheng	<i>J. Chem. Phys.</i> accepted.
C_3ClF_3O ($CClF_2CF_2-CO$)	chlorotrifluoroethene–carbon monoxide complex	Y. Zheng	Spectra recorded
$C_3H_4F_6$ ($CH_2F_2-CFH_2CF_3$)	Difluoromethane–tetrafluoroethane complex	T. Lu	spectra assigned, 3 conformers, ^{13}C isotopes. Manu. Ready
$C_3H_6F_4$ ($CH_2F_2-CHF_2CH_3$)	Difluoromethane–1,1-difluoroethane complex	T. Lu	spectra assigned, 3 conformers, ^{13}C isotopes, Manu. Ready
$C_4H_8F_6$ ($(CH_2F_2)_2-CHF_2CH_3$)	(Difluoromethane) $_2$ –1,1-difluoroethane complex	T. Lu	spectra assigned, 1 conformer
$C_4H_{12}OS$ ($CH_3CH_2SH-CH_3CH_2OH$)	Ethanethiol–ethanol complex	J. Zhang	spectra assigned, 1 conformer
$C_4H_{10}S_2$ ($CH_3CH_2SSCH_2CH_3$)	Diethyl disulfide	J. Zhang	spectra assigned, 2 conformers Manu. Submitted.
$C_4H_{12}S_2$ (CH_3CH_2SH) $_2$	Ethanethiol dimer	X. Li	1 conformer, analysis in progress
$C_7H_3F_5$ ($C_6F_5OCF_3$)	pentafluoroanisole	X. Li	spectra assigned, 1 conformer
$C_8H_{10}O$ ($C_6H_5CHCH_2-H_2O$)	Styrene– H_2O complex	Y. Zheng	spectra assigned, 1 conformer, ^{18}O , D_2O , DOH, HOD isotopes
$C_8H_5F_3O$ ($C_6H_5COCF_3$)	2,2,2-trifluoroacetophenone	J. Lei	Manuscript in preparation

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
$C_8H_7F_3O_2$ ($C_6H_5COCF_3-H_2O$)	2,2,2-trifluoroacetophenone–water complex	J. Lei	spectra assigned, 1 conformer
$C_7H_4BrF_3$ (3-Br- $C_6H_4-CF_3$)	3-bromobenzotrifluoride	J. Lei	Spectra assigned
C_6NH_3F (2-F-4- $CF_3C_6H_3$)	2-Fluoro-4-methylpyridine	S. Gao	Manuscript in preparation
C_6NH_5FO (2-F-4- $CF_3C_6H_3-H_2O$)	2-Fluoro-4-methylpyridine–water complex	S. Gao	spectra assigned, 1 conformer
$C_6H_4F_4O$ ($C_6F_4H_2-H_2O$)	1,2,3,4-Tetrafluorobenzene–water complex	X. Li	spectra assigned, 1 conformer, ^{18}O , D_2O , DOH isotopes
$C_2H_3S_2F_4N$ ($C_2S_2F_4-NH_3$)	Tetrafluoro-1,3-dithietane–ammonia complex	X. Li	spectra assigned, ^{34}S , ^{13}C and ^{15}N isotopes, internal rotation
$C_2H_2F_4O$ ($C_2F_4-H_2O$)	Tetrafluoroethylene–water complex	Q. Gou ¹	Spectrum recorded
$C_2H_3F_3O$ (CF_3H-CH_2O)	Trifluoromethane–formaldehyde complex	Q. Gou ^{1,3,4}	1 conformer, 4 states
C_3ClF_7 ($C_2F_4-CClF_3$)	Tetrafluoroethylene–trifluorochloromethane complex	G. Feng ¹	Spectrum recorded
$C_4H_4F_4O_4$ (CF_2HCOOH) ₂	α,α -F ₂ -acetic acid dimer	Q. Gou ¹	4 states, proton tunneling
$C_4H_{10}O_3$ ($CH(OCH_3)$) ₃	trimethoxymethane	G. Feng ^{1,5}	3 conformers assigned
$C_6H_5ClF_3N$ ($C_6H_5-CClF_3$)	pyridine–trifluorochloromethane complex	Q. Gou ¹	Manuscript submitted
$C_6H_2F_5NO$ ($C_6F_5-CH_2O$)	pentafluoropyridine–formaldehyde	Q. Gou ³	Spectrum recorded
$C_8H_{12}S$ ($CH_3CH_2SH-C_6H_6$)	ethanethiol–benzene complex	G. Feng	Spectrum recorded, analysis in progress

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<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
AgI	silver iodide	L. Bizzocchi ^g , B. M. Giuliano ^g	v = 1 in progress
CBF ₃ O (CO···BF ₃)	carbon monoxide ···trifluoroborane	G. Feng ^b Q. Gou ^b L. Evangelisti ^g	structure, 18-O isotopologue <i>J. Mol. Spectrosc.</i> 335, 80(2017).
COSXe (COS···Xe)	carbonyl sulfide ···xenon	S. Herbers D. Wachsmuth D. A. Obenchain P. Kraus	mult. isotopologues assigned, r _e structure
CBr ₂ F ₂	dibromo- difluoromethane	D. A. Obenchain	rot. spectrum, Br nq-hfs
CH ₅ NO ₂ (CH ₂ O ₂ ···H ₃ N)	formic acid ···ammonia	F. Lovas ^a G. T. Fraser ^a R. D. Suenram ^f	conformation, lam spectrum assigned
C ₂ H ₃ F ₅ O (C ₂ HF ₅ ···H ₂ O)	pentafluoroethane ···water	G. Feng ^b Q. Gou ^b	lam, structure spectrum assigned
C ₄ H ₄ F ₈ ((C ₂ H ₂ F ₄) ₂)	1,1,1,2-tetrafluoro- ethane dimer	G. Feng ^b Q. Gou ^b	conformation, r _s -structure <i>J. Phys. Chem. A</i> 121, 7876(2017).
C ₂ H ₅ NO	cis N-methyl- formamide	C. Evans ^t , D. McNaughton ^k	N nq-hfs, cd measurements completed
C ₂ H ₆ Cl ₂ Si	dichloro- dimethylsilane	D. Banser W. Caminati ^g , A. Lesarri ^e , E. J. Cocinero ^o , M. Schnell	lam, Cl nq-hfs analysis in progress

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C ₂ H ₆ Cl ₂ Sn	dichloro-dimethylstannane	P. Ottaviani ^g , M. Schnell	lam, Cl nq-hfs spectrum assigned
C ₂ H ₆ ArF ₂ Ge (C ₂ H ₆ F ₂ Ge ···Ar)	difluoro-dimethylgerman ···argon	P. Ottaviani ^g , M. Schnell	lam, ms in preparation
C ₂ H ₆ O ₂ S ₂ hfs (C ₂ H ₆ S ···SO ₂)	dimethyl sulfide ···sulfur dioxide	L. Spada ^g D. A. Obenchain C. Puzzarini ^g	mult. isotopologues, lam, 33-S nq- analysis in progress
C ₃ H ₄ Cl ₂ F ₂ O	methoxyflurane	A. Vega ^e , E. J. Cocinero ^o	conformations, Cl nq-hfs, r _s -structure analysis in progress
C ₃ H ₉ ClGe	chloro-trimethylgermane	M. Schnell J. Fritzsche	73-Ge nq-hfs analysis in progress
C ₄ H ₂ O ₃	succinic anhydride	M. K. Jahn, K. P. R. Nair, P. Godfrey ^k , D. McNaughton ^k , N. Vogt ^v	rot. spectrum, theor. struct. calc. hfs under study
C ₅ H ₅ F ₃ O ₂ (C ₄ H ₃ F ₃ O ···CH ₂ O)	trifluoroacetone ···formaldehyde	C. Perez ^e A. Lesarri ^e M. K. Jahn, D. Dewald	rot. spectrum, conformations analysis in progress
C ₄ H ₃ F ₃ O ₃	methyl 3,3,3-trifluoropyruvate	D. Siekmann	lam, rot. spec. measurements in progress
C ₄ H ₆ O ₂	vinylacetate	S. Genuit	lam, mult. isotopologues, high K _a , analysis in progress
C ₅ H ₈ O ₃ (C ₄ H ₆ O ···CH ₂ O ₂)	cyclobutanone ···formic acid	L. Evangelisti ^g L. Spada ^g W. Li ^g S. Blanco ^e J. C. Lopez ^e A. Lesarri ^e	rot. Spectrum, conformations <i>Phys. Chem. Chem. Phys.</i> 19, 204(2017).

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C ₄ H ₇ NO	acetone-cyanohydrin	K. Aydt, M. J. Travers, M. K. Jahn	N nq-hfs, cd assignment completed
C ₅ HN	pentadiene nitrile	H. Span ^j	measurements completed
C ₅ H ₈ O ₂	acetylacetone	W. Caminati ^g , H. G. Kjaergaard ^c	enolic shape, lam deuterated species in progress
C ₅ H ₈ O ₂	methyl methacrylate	S. Herbers D. Wachsmuth D. A. Obenchain	lam, r _s -structure 2 conformers assigned accepted <i>J. Mol. Spectrosc.</i>
C ₅ H ₁₀ O ₃ (C ₅ H ₈ O ₂ ...H ₂ O)	methyl methacrylate ...water	S. Herbers	lam, rot. spec. assignment in progress
C ₁₀ H ₁₆ O ₄ ((C ₅ H ₈ O ₂) ₂)	methyl methacrylate dimer	S. Herbers	rot. Spectrum, lam, ms in preparation
C ₅ H ₉ N	2-cyano-butane	O. Zingsheim ^j N. Wehres	conformation, N nq-hfs <i>J. Phys. Chem. A</i> 121, 7121(2017).
C ₅ H ₁₆ SiSn	dimethylsilyl- trimethylstannane	J. T. Hougen ^a , M. Schnell	lam assignment in progress
C ₆ H ₃ F ₃ O	3,4,5-trifluoro - phenol	K.P.R. Nair D. A. Obenchain	r _s -structure spectrum assigned
C ₆ H ₄ F ₂ O	2,3-difluoro - phenol	K.P.R. Nair	r _s -structure ms in preparation
C ₆ H ₄ F ₂ O	2,4-difluoro - phenol	K.P.R. Nair D. Dewald D. Wachsmuth	r _s -structure <i>J. Mol. Spectrosc.</i> 335, 23(2017).
C ₆ H ₄ F ₂ O	3,4-difluoro - phenol	K.P.R. Nair	r _s -structure spectrum assigned

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C ₆ H ₄ F ₂ O	3,5-difluoro - phenol	D. Dewald	lam analysis completed
C ₆ H ₄ N ₂	2-cyano pyridine	D. Prudenzano, D. Wachsmuth, M. K. Jahn, D. McNaughton ^k	2xN nq-hfs, r _s -structure ms in preparation
C ₆ H ₄ N ₂	3-cyano pyridine	D. Prudenzano, D. Wachsmuth, M. K. Jahn, D. McNaughton ^k	2xN nq-hfs, r _s -structure ms in preparation
C ₆ H ₇ N	4-picoline	S. Herbers, M. K. Jahn, D. Wachsmuth J. Matysik ⁱ V. V. Ilyushin ^p W. Caminati ^g	lam, N nq-hfs, analysis in progress
C ₆ H ₁₁ NO	ε-caprolactam	D. Wachsmuth M. Vallejo ^e	N nq-hfs , pseudo-rot., spectra assigned
C ₆ H ₁₂ O	oxepane	J. Borter, D. Wachsmuth, A. Lesarri ^e	rot. Spectrum, pseudo-rot. spectrum assigned
C ₆ H ₁₃ N	azepane	D. Wachsmuth, M. Vallejo ^e	N nq-hfs, pseudo-rot. spectra assigned
C ₇ H ₆ F ₂	2,3-difluoro-toluene	K. P. R. Nair	lam, Stark effect, r _s -structure spectra assigned
C ₇ H ₆ F ₂	2,4-difluoro-toluene	K. P. R. Nair	lam, Stark effect, r _s -structure accepted <i>J. Mol. Spectrosc.</i>
C ₇ H ₆ F ₂	2,5-difluoro-toluene	K. P. R. Nair A. Lessari ^e D. Wachsmuth	lam, Stark effect, r _s -structure <i>J. Mol. Spectrosc.</i> 337, 46(2017).
C ₇ H ₆ F ₂	3,4-difluoro-toluene	K. P. R. Nair	lam, Stark effect, r _s -structure spectra assigned

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C ₇ H ₇ Cl	meta-chloro-toluene	K. P. R. Nair V. V. Ilyushin ^p	lam, Cl nq-hfs ms in preparation
C ₇ H ₇ Cl	para-chloro-toluene	K. P. R. Nair V. V. Ilyushin ^p	lam, Cl nq-hfs ms in preparation
C ₇ H ₇ F	meta-fluoro-toluene	K. P. R. Nair	lam, r _s -structure analysis completed
C ₇ H ₁₂	cycloheptene	D. Wachsmuth	structure spectrum assigned
C ₇ H ₁₂ O	cycloheptanone	D. Wachsmuth, M. K. Jahn	lam, pseudo-rot. spectrum assigned
C ₇ H ₁₄ N ₂ O ₂	N-acetyl-L-valinamide 24985(2017).	I. León ^e , E. R. Alonso ^e , S. Mata ^e , C. Cabezas ^e , M.A. Rodriguez ^e	conformers, N nq-hfs <i>Phys.Chem.Chem.Phys.</i> 19,
C ₈ H ₄ N ₂	1,2-dicyano-benzene	E. Locatelli D. Dewald M. K. Jahn	N nq-hfs, structure, ms in preparation
C ₈ H ₄ N ₂	1,3-dicyano-benzene	D. Dewald M. K. Jahn M. Jüstel F. Lovas ^a	N nq-hfs, structure, ms in preparation
C ₈ H ₈ O	para-tolualdehyde	W. Caminati ^g A. Hight-Walker ^a J. T. Hougen ^a I. Kleiner ^d J. Gauß ^h H. Saal	lam, torsionally excited states, ms in preparation
C ₈ H ₁₂ N	cyanocycloheptane	D. Wachsmuth A. Lesarri ^e	lam, N nq-hfs, conformation ms in preparation
C ₉ H ₆ O ₂	coumarin	H. V. L. Nguyen ^m	rot. spectrum, r _s -structure ms in preparation

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C ₉ H ₇ NO	8-hydroxy-quinoline	D. Wachsmuth D. McNaughton ^k	N nq-hfs, cd main species assigned
C ₁₀ H ₁₆ O	2-decalone	M. K. Jahn, D. Wachsmuth A. Lesarri ^e	rot. spectrum, <i>ChemPhysChem</i> 18, 3620(2017).
C ₁₁ H ₇ N	1-cyano-naphthalene	M. J. Travers, D. McNaughton ^k M. K. Jahn	N nq-hfs, cd assignment completed
C ₁₁ H ₇ N	2-cyano-naphthalene	M. J. Travers, D. McNaughton ^k M. K. Jahn	N nq-hfs, cd assignment completed
C ₁₁ H ₁₅ NO ₂	butamben	M. Vallejo ^e , W. Caminati ^g , E. J. Cocinero ^o	conformation(s), r _s -structure ms in preparation
C ₁₁ H ₁₅ NO ₂	isobutamben	M. Vallejo ^e , W. Caminati ^g , E. J. Cocinero ^o	conformation(s), r _s -structure ms in preparation
C ₁₃ H ₉ N	5,6-benzoquinoline	M. J. Travers, M. K. Jahn D. Wachsmuth D. McNaughton ^k P. Godfrey ^k	N nq-hfs, cd, inertia defect <i>Phys.Chem.Chem.Phys.</i> 19, 9870(2017).
C ₁₃ H ₉ N	7,8-benzoquinoline	M. J. Travers, M. K. Jahn D. Wachsmuth D. McNaughton ^k P. Godfrey ^k	N nq-hfs, cd, inertia defect <i>Phys.Chem.Chem.Phys.</i> 19, 9870(2017).
C ₁₃ H ₁₁ NO	benzanilide	S. Herbers, D. Wachsmuth, M. K. Jahn	lam, N nq-hfs, submitted
C ₁₅ H ₉ N	9-cyano-phenanthrene	M. J. Travers, M. K. Jahn D. McNaughton ^k P. Godfrey ^k	N nq-hfs, cd ms in preparation

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C ₁₅ H ₉ N	9-cyano-anthracene	M. J. Travers, M. K. Jahn D. McNaughton ^k P. Godfrey ^k	N nq-hfs, cd ms in preparation
ClFLi ₂	dilithium chloride fluoride	R. J. Mawhorter ^l	structure measurement in progress
ClRb	rubidium chloride	R. J. Mawhorter ^l	isotopologues, fs/hfs Measurement/assignment completed
CsF ₂ Li	lithium caesium difluoride	R. J. Mawhorter ^l	structure measurement in progress
CuI	copper iodide	L. Bizzocchi ^g , B. M. Giuliano ^g	nq-hfs, spin-spin coupling, $\nu = 1$, in progress
FK	potassium flouride	R. J. Mawhorter ^l	isotopologues, fs/hfs Measurement/assignment completed
FPb	lead flouride	R. J. Mawhorter ^l T. J. Sears ^s	isotopologues, fs/hfs, $\nu > 0$ measurement in progress
FRb	rubidium flouride	R. J. Mawhorter ^l	isotopologues, fs/hfs Measurement/assignment completed
FYb	ytterbium flouride	R. J. Mawhorter ^l , T. C. Steimle ^u	isotopologues, fs/hfs, Zeeman effect measurement in progress
F ₂ KLi	lithium potassium difluoride	R. J. Mawhorter ^l	structure assignment completed
F ₂ LiRb	lithium rubidium difluoride	R. J. Mawhorter ^l	structure measurement/assignment in progress
HF ₅ OTe	tefllic acid	S. Herbers D. A. Obenchain P. Kraus D. Wachsmuth	r _c -structure, ms in preparation
IK	potassium iodide	R. J. Mawhorter ^l	isotopologues, fs/hfs measurement/assignment completed

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
IRb	rubidium iodide	R. J. Mawhorter ^l	isotopologues, fs/hfs measurement/assignment completed

EXPERIMENTAL Hannover FTMW spectrometer control & analysis software is available at <http://www.pci.uni-hannover.de/~lgpca/spectroscopy/ftmw>

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FORMULA	NAME OF COMPOUND	INVESTIGATOR	PRESENT STAGE OF PROGRESS
C ₂ H ₅ NO ₂ (NH ₂ COOCH ₃)	methyl carbamate	with Medvedev, ^d De Lucia ^d	sub-mm of CH ₃ tors. exc. state
C ₂ H ₆ O	dimethyl ether	with De Lucia ^d , Endres ^e , Müller ^e , Herbst ^a	tors. excited states, sub-mm assigned
C ₃ H ₆ O	acetone	with Christen ^f	MW-MW-DR in □ ₇ MS in preparation
C ₂ H ₇ P	ethylphosphine		ERHAM analysis for doublets or quartets in vib exc states
C ₄ H ₇ F ₃ Si (C ₄ H ₇ SiF ₃)	Cyclobutyl trifluorosilane	Pate, ^a Durig, Guirgis, ^b Deodhar	FTMW assigned MS in preparation
C ₄ H ₈ Cl ₂ Si (C ₄ H ₇ SiHCl ₂)	Cyclobutyl dichlorosilane	Durig, Brenner	In progress
C ₄ H ₁₀ Si	4-silyl-1-butene	Durig, Panikar, Tubergen ^c	2 conformers assigned

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<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
$C_{10}H_{14}O$	Verbenone	F. E. Marshall ¹ , G. Sedo ⁸ , C. West ¹³ , B. H. Pate ¹³ , S. M. Allpress ¹⁵ , C. J. Evans ¹⁵ , P. D. Godfrey ¹⁶ , D. McNaughton ¹⁶ , G. S. Grubbs II ¹	Published in <i>J. Molec. Spectrosc.</i> 342 (2017) 109.
ArClH (Ar-HCl)	Ar-Hydrogen Chloride Complex ³⁶ Ar/ ³⁷ Cl, ³⁸ Ar/ ³⁵ Cl, ³⁸ Ar/ ³⁷ Cl isotopologues	F. E. Marshall ¹ , J. L. Neill ¹³ , M. T. Muckle ¹³ , B. H. Pate ¹³ , Z. Kisiel ¹⁷ , G. S. Grubbs II ¹	Published in <i>J. Molec. Spectrosc.</i> 344 (2018) 34.
AuClH ₂ (H ₂ -AuCl)	Hydrogen-Gold Chloride complex	D. A. Obenchain ² , G. S. Grubbs II ¹ , H. M. Pickett ² , S. E. Novick ²	Published in <i>J. Chem. Phys.</i> 146 (2017) 204302.
$C_6H_4ArF_2$	Ar-1,3-Difluorobenzene vdW Complex	F. E. Marshall ¹ , R. Dorris ¹² , S. A. Peebles ¹² , R. A. Peebles ¹² , G. S. Grubbs II ¹	Submitted to <i>J. Phys. Chem. A</i>
$C_3H_2BrF_5$	3-Bromo-1,1,1,2,2-Pentafluoropropane	F. E. Marshall ¹ , N. Moon ¹ , T. D. Persinger ¹ , D. J. Gillcrist ¹ , N. E. Shreve ¹ , W. C. Bailey ⁷ , G. S. Grubbs II ¹	Submitted to <i>Mol. Phys.</i>
AgClD ₂ AgClDH (D ₂ -AgCl and HD-AgCl)	Deuterium-Silver Chloride complex	D. A. Obenchain ² , G. S. Grubbs II ¹ , D. S. Frank, H. M. Pickett ² , S. E. Novick ²	Manuscript in Preparation
$C_{10}H_{16}O$	Myrtenol	F. E. Marshall ¹ , G. Sedo ⁸ , G. S. Grubbs II ¹	Manuscript in Preparation

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<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
$C_{11}H_{18}O$	Nopol	F. E. Marshall ¹ , G. Sedo ⁸ , G. S. Grubbs II ¹	Manuscript in Preparation
C_3ClF_6O	Chloroperfluoroacetone	W. C. Bailey ⁷ , S. A. Cooke ⁴ , G. S. Grubbs II ¹	Manuscript in Preparation with $C_3Cl_2F_4O$
$C_3Cl_2F_4O$	1,3-dichloro-1,1,3,3-tetrafluoroacetone	W. C. Bailey ⁷ , S. A. Cooke ⁴ , G. S. Grubbs II ¹	Manuscript in Preparation with C_3ClF_6O
$C_3H_2ClF_3O$	1-chloro-3,3,3-trifluoroacetone	S. A. Cooke ⁴ and G. S. Grubbs II ¹	Manuscript in Preparation
BaS	Barium Monosulfide	G. S. Grubbs II ¹ , C. T. Dewberry ⁵ , K. C. Etchison ⁶ , S. A. Cooke ⁴	Manuscript in Preparation
$C_4H_6F_2Si$	1,1-Difluorosilacyclopent-2-ene	F. E. Marshall ¹ , G. Jones ¹⁰ , T. Carrigan-Broda ¹⁰ , G. Guirgis ¹⁰ , G. S. Grubbs II ¹	Manuscript in Preparation
$C_4H_6F_2Si$	1,1-Difluorosilacyclopent-3-ene	F. E. Marshall ¹ , A. J. Duerden ¹ , G. Jones ¹⁰ , T. Carrigan-Broda ¹⁰ , G. Guirgis ¹⁰ , G. S. Grubbs II ¹	Manuscript in Preparation
$C_4H_8F_2Si$	1,1-Difluorosilacyclopentane	F. E. Marshall ¹ , D. J. Gillcrist ¹ , G. Jones ¹⁰ , T. Carrigan-Broda ¹⁰ , G. Guirgis ¹⁰ , G. S. Grubbs II ¹	Manuscript in Preparation
C_4H_8Si	Silacyclopent-3-ene	F. E. Marshall ¹ , N. Moon ¹ , G. Jones ¹⁰ , T. Carrigan-Broda ¹⁰ , G. Guirgis ¹⁰ , G. S. Grubbs II ¹	Manuscript in Preparation
$C_5H_{10}ClFSi$	1-Fluoro-1-chloromethylsilacyclopentane	F. E. Marshall ¹ , I. Sedlacek ¹ , G. Jones ¹⁰ , T. Carrigan-Broda ¹⁰ , G. Guirgis ¹⁰ , G. S. Grubbs II ¹	Experiments Completed; Assignments in Progress
C_2HBrF_4	2-Bromo-1,1,1,2-tetrafluoroethane	F. E. Marshall ¹ , J. Isert ¹ , G. S. Grubbs II ¹	Experiments Completed; Assignments in Progress
$C_4H_6F_3I$	3-iodo-1,1,1-trifluorobutane	F. E. Marshall ¹ , J. Isert ¹ , G. S. Grubbs II ¹	Experiments Completed; Assignments in Progress
$ClCuH_2$ (H_2-CuCl)	Hydrogen-Copper Chloride complex	D. A. Obenchain ² , G. S. Grubbs II ¹ , H. M. Pickett ² , S. E. Novick ²	Experiments Completed; Assignments in Progress

Lab 15

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
CF ₂ I ₂	Difluorodiiodomethane	G. S. Grubbs II ¹ and S. A. Cooke ⁴	Experiments Completed; Assignments in Progress
C ₃ H ₅ ClO	Chloroacetone	F. E. Marshall ¹ , S. A. Cooke ⁴ , G. S. Grubbs II ¹	Experiments Completed; Assignments in Progress
C ₂ H ₁₂ Si ₃	Trisilylpentane	F. E. Marshall ¹ , W. R. N. Tonks ¹⁰ , D. J. Gillcrist ¹ , C. J. Wurrey ⁹ , G. Guirgis ¹⁰ , G. S. Grubbs II ¹	Experiments Completed; Assignments in Progress
C ₅ H ₇ NO	1-sila-1-isocyanocyclopent-3-ene	F. E. Marshall ¹ , D. V. Hickman ¹⁰ , M. H. Palmer ¹¹ , C. J. Wurrey ⁹ , N. Moon ¹ , T. D. Persinger ¹ , B. H. Pate ¹³ , N. Seifert ¹³ , G. Guirgis ¹⁰ , G. S. Grubbs II ¹	Experiments Completed; Assignments in Progress
C ₃ H ₇ F ₅ O ₅ (C ₃ HF ₅ O ₂ -(H ₂ O) ₃)	Perfluoropropionic Acid Trihydrate Complex	G. S. Grubbs II ¹ , D. A. Obenchain ² , S. A. Cooke ⁴ , S. E. Novick ² , A. Serrato III ³ , W. Lin ³	Experiments Completed; Assignments in Progress
H ₂ O ₃ (H ₂ O-O ₂)	Water-Oxygen vdW complex	A. J. Duerden ¹ , F. E. Marshall ¹ , N. Moon ¹ , T. D. Persinger ¹ , G. S. Grubbs II ¹	Experiments Completed; Assignments in Progress
C ₁₄ H ₂₀ O	Verbenone-3-butyn-2-ol vdW Complex (chiral tag)	L. Evangelisti ¹⁴ , K. J. Mayer ¹³ , M. S. Holdren ¹³ , T. Smart ¹³ , C. West ¹³ , B. H. Pate ¹³ , G. Sedo ⁸ , F. Marshall ¹ , G. S. Grubbs II ¹	Assignments in Progress
ClPb	Lead Monochloride	G. S. Grubbs II ¹ , S. Norman ¹ , R. Dawes ¹ , B. E. Long ² , C. T. Dewberry ⁵ , S. A. Cooke ⁴	Experiments Completed; Assignments in Progress
CO ₃ (CO-O ₂)	Carbon Monoxide-Oxygen vdW complex	F. E. Marshall ¹ , D. J. Gillcrist ¹ , N. Moon ¹ , T. D. Persinger ¹ , G. S. Grubbs II ¹	Experiments in Progress
ClHO ₂ (HCl-O ₂)	Hydrogen Chloride-Oxygen vdW complex	A. J. Duerden ¹ , F. E. Marshall ¹ , D. J. Gillcrist ¹ , N. Moon ¹ , T. D. Persinger ¹ , G. S. Grubbs II ¹	Experiments and Assignments in Progress

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<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C ₂ H ₃ (HDCCH)	Vinyl	M. Hayashi H. Matsubayashi	Pure rotational transitions for the cis-tautomer assigned and analyzed. Manuscript in preparation.
C ₂ D ₃ (D ₂ CCD)	Vinyl	M. Ohtsuki H. Matsubayashi	Proton tunneling transitions assigned and analyzed. Manuscript in preparation.
CCoO (CoCO)	Cobalt carbonyl	T. Hikida M. Hayashi	Rotational spectrum in the $\Omega = 3=2$ and $5/2$ spin states and vibrationally excited states assigned and analyzed. Manuscript in preparation.
FeNO	Iron nitrosyl	M. Nakashima S. Ikeda	Rotational spectrum in the ground and vibrationally excited states assigned.
C ₃ H ₄ O ₂	Malonaldehyde	T. Baba K. Tanaka	Proton tunneling spectrum. Collaboration with Dr. K.M.T. Yamada (NIRE).
C ₇ H ₆ O ₂ (C ₇ H ₅ O ₂ D)	Tropolone	H. Matsumoto	Spectrum assigned. Tunneling Splitting was detected.

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
CHHeN (He HCN)	Helium-hydrogen cyanide complex	K. Harada K. Tanaka	Millimeterwave spectrum of internal rotation hot band and intermolecular stretching band. Munuscript in preparation.
CHHeN (He DCN)	Helium-hydrogen cyanide complex	K. Harada M. Takagi M. Takamori	Millimeterwave spectrum of internal rotation fundamental and hot bands.
CHNNe (Ne HCN)	Neon-hydrogen cyanide complex	K. Harada A. Okumura K. Hagi	Millimeterwave spectrum of internal rotation bands. Munuscript in preparation.
CHNNe (Ne DCN)	Neon-hydrogen cyanide complex	M. Takagi N. Oyamada	Millimeterwave spectrum of internal rotation bands.
CHARN (Ar HCN)	Argon-hydrogen cyanide complex	S. Matsushita	Millimeterwave spectrum of the j=3-2 internal rotation band.
CHARN (Ar DCN)	Argon-hydrogen cyanide complex	R. Watanabe	Millimeterwave spectrum of the j=2-1 internal rotation band.
CH ₃ N (H ₂ HCN)	Hydrogen-hydrogen cyanide complex	K. Hagi R. Yamanaka M. Ishiguro K. Harada K. Tanaka	Millimeterwave absorption spectrum of internal rotation band observed and assigned.
CH ₃ N (H ₂ DCN)	Hydrogen-hydrogen cyanide complex	M. Ishiguro K. Harada K. Tanaka T. Tanaka M. Nakajima Y. Sumiyoshi Y. Endo	FTMW and MMW spectra have been observed and analyzed. Manuscript in preparation.
ClH ₃ (H ₂ HCl)	Hydrogen-hydrogen chloride complex	M. Ishiguro	Pure rotational spectrum assigned and analyzed.

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
ClH ₃ (H ₂ DCl)	Hydrogen-hydrogen chloride complex	K. Nagata	Pure rotational spectrum observed and analyzed.
FH ₃ (H ₂ HF) (H ₂ DF)	Hydrogen-hydrogen fluoride complex	T. Moriyama Y. Iwasaki	Pure rotational spectrum observed.
CHFO ₂ (OCO HF) (OCO DF)	Carbon dioxide- hydrogen fluoride complex	K. Harada M. Ishiguro C. Whitham	Millimeterwave spectrum of vdw bend band.
H ₄ O (H ₂ H ₂ O) (H ₂ D ₂ O)	Hydrogen-water complex	K. Harada C. Whitham Y. Iwasaki T. Giesen K. Tanaka	Pure rotational Millimeterwave spectrum observed. Manuscript in preparation.
C ₂ H ₂ N ₂ (HCN DCN) (DCN HCN) (DCN DCN)	Hydrogen cyanide dimer	K. Harada M. Shirasaka K. Tanaka	Millimeterwave spectrum of high-J rotational lines. Manuscript in preparation.
C ₂ H ₂ N (CH ₂ CN)	Cyanomethyl radical	M. J. Tsuchiya	Spectrum in excited vibrational states observed.
Cl ₂ Sn (SnCl ₂)	Tin dichloride	K. Uemura	Spectrum assigned.
ClSi ⁺ (SiCl ⁺)	Silicon chloride ion	K. Tanaka K. Harada C. Cabezas Y. Endo	FTMW spectrum in the ground and excited vibrational states. J. Mol. Spectrosc., 345, 39 (2018).
FGe ⁺ (GeF ⁺)	Germanium fluoride ion	K. Tanaka	In progress

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C_3H_6	Cyclopropane	K. Tanaka	Centrifugal distortion induced transitions.
C_3H_4	Allene	K. Tanaka	Vibrationally induced transitions. Manuscript in preparation.
F_3OP (POF_3)	Phosphoryl uoride	K. Someya	LMDR in excited states in progress.
F_3HSi ($HSiF_3$) ($DSiF_3$)	Trifluorosilane	K. Harada	LMDR Manuscript in preparation.
CH_3F (CH_3F) (CD_3F)	Methyl fluoride	K. Harada	LMDR Manuscript in preparation.
CH_3I	Methyl iodide	K. Harada	LMDR in progress.
C_2HF ($HCCF$)	Fluoroacetylene	Y. Nakahara	LMDR in progress.
C_2H_3N (CH_3CN)	Methyl cyanide	T. Oyama	LMDR in progress.
C_2H_3N (CH_3NC)	Methyl isocyanide	T. Oyama	LMDR Manuscript in preparation.
C_3HN ($DCCCN$)	Cyanoacetylene	K. Tanaka	LMDR in progress.
CFN (FCN)	Cyanogen uoride	S. Matsuba	LMDR in progress.
ClF_5S ($SClF_5$)	Sulfur chloride penta uoride	K. Harada	LMDR in progress.

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<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
$C_6H_{10}S$	7-Thiabicyclo [2.2.1]heptane	K. Irie	Work in progress.
HNO	Nitroxyl	K. Takagi ^b S. Saito ^c	Manuscript in preparation.
ClOS [ClSO]	ClSO radical	S. Saito ^c	Work almost completed.
CH_3O_2 [CH_3OO]	Methyl peroxide	K. Katoh ^d Y. Endo ^d E. Hirota	Manuscript in preparation.
$C_4H_6D_2$	Cyclobutane-1,2-d ₂	E. Hirota	<i>cis, trans</i> , work completed.
$C_4H_4D_4$	Cyclobutane-1,1,3,3,-d ₄	E. Hirota	Work completed.
KO	Potassium monoxide	C. Yamada	² Π, ² Σ ⁺ , work almost completed.
BH ₄ N	Aminoborane	W. Lewis-Bevan	Work almost completed.
BH ₄ Li	Lithium tetrahydroborate	Y. Kawashima ^a	Excited vibrational states, work in progress.
BH ₄ K	Potassium tetrahydroborate	Y. Kawashima ^a	Excited vibrational states, work almost completed.

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C ₂ H ₄ N ₂ S [N ₂ -(CH ₂) ₂ S]	Dinitrogen-ethylene sulfide	S. Iwano ^a Y. Kawashimna ^a E. Hirota	Spectra assigned for N ₂ , N ¹⁵ N, ¹⁵ N ₂ species
C ₂ H ₆ N ₂ O [N ₂ -(CH ₃) ₂ O]	Dinitrogen-dimethyl ether	Y. Kawashima ^a E. Hirota	Spectra assigned for N ₂ , N ¹⁵ N, ¹⁵ N ₂ species.
C ₂ H ₆ N ₂ S [N ₂ -(CH ₃) ₂ S]	Dinitrogen-dimethyl sulfide	S. Iwano ^a Y. Miyawaki ^a Y. Kawashima ^a E. Hirota	Spectra assigned for N ₂ , N ¹⁵ N, ¹⁵ N ₂ species
C ₃ H ₆ N ₂ O ₂ [NH ₂ COCH ₂ CONH ₂]	Malonamide	T. Usami ^a Y. Kawashima ^a R. D. Suenram ^e E. Hirota	Manuscript prepared.
C ₃ H ₆ O [CH ₃ CH(O)CH ₂]	Propylene oxide	E. Hirota Y. Kawashima ^a	Work completed.
C ₃ H ₆ O ₂ S [CO ₂ -(CH ₃) ₂ S]	Carbon dioxide-dimethyl-sulfide	S. Iwano ^a Y. Kawashima ^a E. Hirota	Work in progress, two states assigned.
C ₃ H ₇ NO [HCONHCH ₂ CH ₃]	N-Ethylformamide	K. Ohba ^a T. Usami ^a Y. Kawashima ^a E. Hirota	Second conformer assigned.
C ₃ H ₈ OS [OHCH ₂ CH ₂ CH ₂ SH]	3-Mercapto-1- propanol	Y. Tanaka ^a Y. Kawashima ^a E. Hirota	Five rotamers assigned.
C ₄ H ₆ O ₂ [CO-CH ₃ CH(O)CH ₂]	Carbon monoxide-propylene oxide	H. Mizuno ^a Y. Kawashima ^a E. Hirota	<i>Anti</i> form: normal, ¹³ CO, C ¹⁸ O species, assigned.

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C ₄ H ₆ O ₃ [CH ₃ CH(CO ₃)CH ₂]	Propylene carbonate	T. Kinjo ^a Y. Kawashima ^a E. Hirota	Normal, ¹³ C (4 species), ¹⁸ O (3 species) assigned.
C ₄ H ₇ NO ₂ [(CH ₃ CO) ₂ NH]	Diacetamide	Y. Kawashima ^a R. D. Suenram ^c E. Hirota	A state and E state assigned.
C ₄ H ₈ N ₂ O ₂ [CH ₃ CONHCH ₂ CONH ₂]	N _α -Acetylglycinamide	Y. Kawashima ^a R. J. Lavrich ^c R. D. Suenram ^c E. Hirota	A state assigned, E state assignment in progress.
C ₄ H ₉ NO [CH ₃ CONHCH ₂ CH ₃]	N-Ethylacetamide	Y. Kawashima ^a T. Usami ^a K. Ohba ^a R. D. Suenram ^c E. Hirota	Manuscript prepared.
C ₄ H ₁₀ O [CH ₃ CH ₂ CH ₂ CH ₂ OH]	n-Butanol	T. Uzuyama ^a Y. Tanaka ^a Y. Kawashima ^a E. Hirota	Seven rotamers assigned.
C ₄ H ₁₀ O [CH(CH ₃) ₂ CH ₂ OH]	Isobutanol	T. Uzuyama ^a Y. Kawashima ^a E. Hirota	Four rotamers assigned.
C ₄ H ₁₀ S [CH ₃ CH ₂ CH ₂ CH ₂ SH]	n-Butanethiol	Y. Tanaka ^a Y. Kawashima ^a E. Hirota	Seven rotamers, one for SD assigned.
C ₄ H ₁₀ S [CH(CH ₃) ₂ CH ₂ SH]	Isobutanethiol	Y. Tanaka ^a Y. Kawashima ^a E. Hirota	Three rotamers, ³⁴ S, ¹³ C species assigned.

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C ₅ H ₁₀ O [CH ₂ CH ₂ CH ₂ CH ₂ CHOH]	Cyclopentanol	Y. Kawashima ^a E. Hirota B. Carroll ^f G. Blake ^f	Work in progress
C ₅ H ₁₂ O [CH ₃ CH ₂ CH ₂ CH ₂ CH ₂ OH]	<i>n</i> -pentanol	Y. Komamine ^a Y. Kawashima ^a E. Hirota	Six isomers assigned.
C ₅ H ₁₂ O [H ₃ CCH ₂ CH(CH ₃)CH ₂ OH]	2-Methyl-1-butanol	Y. Kawashima ^a N. Koshimae ^a Y. Tanimoto ^a E. Hirota	Three conformers assigned.
C ₅ H ₁₂ S [(CH ₃) ₃ CSCH ₃]	<i>Tert</i> -butyl methyl sulfide	R. Watanabe ^a Y. Kawashima ^a E. Hirota	Normal, ³⁴ S, ¹³ C species assigned.
C ₆ H ₁₀ [CH=CHCH ₂ CH ₂ CH ₂ CH ₂]	Cyclohexene	Y. Kawashima ^a E. Hirota	Isotopomer assigned.
C ₆ H ₁₀ O [CH ₃ CH ₂ CH ₂ CH=CHCHO]	<i>Trans</i> -2-hexenal	R. Yokoyama ^a Y. Kawashima ^a E. Hirota	Four conformers assigned
C ₆ H ₁₄ O [CH ₃ CH ₂ CH ₂ CH ₂ CH ₂ CH ₂ OH]	<i>n</i> -Hexanol	Y. Hosoya ^a Y. Kawashima ^a E. Hirota	Three conformers assigned
C ₈ H ₁₂ [CH=CHCH ₂ CH(CH=CH ₂)CH ₂ CH ₂]	4-Vinyl-1-cyclohexene	Y. Nakanishi ^a Y. Kawashima ^a R. J. Lavrich ^e R. D. Suenram ^e E. Hirota	Two conformers assigned.

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<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C ₇ H ₇ Cl (CH ₃ C ₆ H ₄ Cl)	p-chlorotoluene	Ilyushin V. ^{a,b}	FTMW spectrum of the ³⁵ Cl and ³⁷ Cl isotopologues, analysis in progress
C ₃ H ₄ O ₃ (CH ₃ COCOOH)	pyruvic acid	Ilyushin V. ^{a,c} Alekseev E.	Microwave spectrum in the 49-149 GHz range; gs + first excited torsional state assigned, ν ₂₄ in progress.
C ₂ H ₅ NO (CH ₃ CONH ₂)	acetamide	Ilyushin V. ^d	Microwave spectrum in the 49-660 GHz range; analysis of ν _i =0,1,2 up to J =60 in progress
C ₃ H ₆ O ₂ (C ₂ H ₅ COOH)	propionic acid	Kutsenko A. ^e	Microwave spectrum in the 150 – 540 GHz range, analysis in progress
CH ₃ D ₂ N (CH ₃ ND ₂)	deuterated methylamine	Ilyushin V. ^e Alekseev E.	Microwave spectrum in the 50-950 GHz range, spectrum assigned, analysis in progress.
C ₅ H ₆ O ₂	2-furan-methanol	Alekseev E. ^{e, f} Dyubko S.	microwave spectrum in 5 – 210 GHz frequency range, analysis in progress
C ₅ H ₄ O ₃	2-furan-carboxylic acid	Alekseev E. ^e	Microwave spectra in the 5 - 240 GHz, manuscript in preparation
C ₃ H ₇ NO (CH ₃ CH ₂ CONH ₂)	propionamide	Ilyushin V. ^e Alekseev E.	MM+SMM spectra, internal rotation, analysis in progress
C ₂ H ₄ O ₂ (HCOOCH ₃)	methylformate	Ilyushin V. ^e	gs and first excited torsional state, 49-950 GHz, analysis in progress
C ₃ H ₆ O ((CH ₃) ₂ CO)	acetone	Ilyushin V. ^e Alekseev E.	New measurements in the 49-950 GHz, ν _i =0,1,2 assigned up to J=90, manuscript in preparation

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C ₄ H ₄ O (CH ₃ CCCHO)	2-butylnal	Ilyushin V. ^e	Measurements in the 3-215 GHz range, analysis in progress
C ₂ H ₆ S ((CH ₃) ₂ S)	dimethylsulfide	Ilyushin V. ^{c,e} Alekseev E.A.	Measurements in the 49 – 660 GHz range, analysis of the $\nu_t=0,1,2$ microwave data up to J=60, manuscript in preparation
CH ₄ O (CH ₃ OH)	methanol	Alekseev E. ^{g,h,i}	anomalous hyperfine splittings of high J transitions in the excited torsional states, analysis in progress
C ₂ H ₄ O (CH ₃ CHO)	acetaldehyde	Ilyushin V. ^{e,c,g}	Analysis of the $\nu_{10}=1$ and $\nu_t=3,4$ torsional states in the 49 – 960 GHz range is in progress
C ₂ H ₄ S (CH ₃ CHS)	thio-acetaldehyde	Ilyushin V. ^e	Analysis of the new measurements in the 150 – 660 GHz range, manuscript in preparation
CH ₅ As (CH ₃ AsH ₂)	methylarsine	Ilyushin V. ^e	Analysis of the internal rotation in the millimeter and submillimeter wave spectra up to 650 GHz, manuscript in preparation
CH ₄ S (CH ₃ SH)	methyl mercaptan	Ilyushin V. ^d	New measurements in the 49 – 500 GHz range, analysis of the $\nu_t=0,1,2$ microwave data up to J=60, manuscript in preparation
CH ₄ S (CH ₃ ³⁴ SH)	³⁴ S methyl mercaptan	Ilyushin V. ^d	New measurements in the 49 – 500 GHz range, analysis of the $\nu_t=0,1,2$ in progress

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^b In collaboration with J.-U. Grabow, Institut für Physikalische Chemie und Elektrochemie, Wilhelm-Gottfried-Leibniz-Universität Hannover, Germany

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<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
H_2N_2O (oH_2-N_2O ; pH_2-N_2O ; pD_2-N_2O ; ^{15}N ; $^{15}N_2$)	dihydrogen - nitrous oxide	J. N. Landry	Manuscript in preparation. ¹
H_2N_2O , $N=2-12$ (oH_2 ; pH_2 ; ^{15}N ; $^{15}N_2$)	(dihydrogen) _N - nitrous oxide	J. N. Landry	Manuscript in preparation.
H_3NNe (Ne - NH ₃)	neon - ammonia (inversion transitions)	J. M. Michaud L. E. Downie P. Raston	Spectra collected; assignment in progress.
CH_4O_4 ($CH_2O_2-H_2O_2$)	formic acid - hydrogenperoxide	L. Li N. Seifert M. Heger	manuscript near completion. ²
CFHeN (He-FCN)	helium – fluorine cyanide	M. Morissey C. Knapp	PES calculated; spectra collected.
$C_2H_6O_6$ ($C_2H_2O_4-(H_2O)_2$)	oxalic acid - (water) ₂	E. Schnitzler	Manuscript near completion.
$C_2H_6F_3NO$ ($C_2H_3F_3O-NH_3$)	trifluoroethanol-ammonia	J. Thomas Y. Yang	Manuscript near completion. ²
$C_2H_{10}O_5$ ($C_2H_4O_2-(H_2O)_3$)	acetic acid – water ₃	E. Schnitzler N. Seifert	ab initio calculations completed; assignment in progress.
$C_3H_8O_2$ ($C_3H_6O-H_2O$)	acetone - water	J. Gao J. Thomas	Manuscript near completion. ²
$C_3H_8O_3$ ($C_3H_6O_2-H_2O$)	hydroxyacetone - water	E. Schnitzler N. Seifert J. Thomas	ab initio calculations completed; assignment in progress.
$C_4H_4N_2O$	4-hydroxypyrimidine	J. Gao	2 tautomers identified
$C_4H_6N_2O_2$ ($C_4H_4N_2O-H_2O$)	4-hydroxypyrimidine - water	J. Gao	ab initio calculations completed; assignment in progress.
$C_4H_6O_2$ ($C_4H_4O-H_2O$)	furan - water	S. Ghosh	ab initio calculations, spectra collected. ²

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C ₄ H ₇ NO (C ₄ H ₅ N-H ₂ O)	pyrrole - water	J. Thomas S. Ghosh	¹³ C isotopologues; spectra assigned. ²
C ₄ H ₉ NO ₂ (C ₄ H ₅ N-(H ₂ O) ₂)	pyrrole - (water) ₂	J. Thomas S. Ghosh	ab initio calculations; assignment in progress. ²
C ₅ H ₅ N ₃ (N ₂ -C ₅ H ₅ N)	nitrogen - pyridine	C. Tanjaroon	Manuscript in preparation.
C ₅ H ₇ N (H ₂ -C ₅ H ₅ N)	hydrogen - pyridine	C. Tanjaroon	Manuscript in preparation.
C ₅ H ₈ O ₃	tetrahydro-2-furoic acid	J. Thomas	Monomer and four ¹³ C isotopologues assigned. ²
C ₅ H ₁₀ O ₃ (C ₅ H ₈ O ₂ -H ₂ O)	acetylacetone - water	J. Gao	ab initio calculations completed; partial assignment.
C ₅ H ₁₀ O ₄ (C ₅ H ₈ O ₃ -H ₂ O)	tetrahydro-2-furoic acid - water	J. Thomas	Assignment in progress. ²
C ₆ H ₁₀ O ₃ (C ₆ H ₈ O ₂ -H ₂ O)	1,3-cyclohexanedione - H ₂ O	J. Gao	ab initio calculations completed; assignment in progress.
C ₆ H ₁₂ O ₂ (C ₆ H ₁₀ O-H ₂ O)	cyclohexanone - water	J. Gao J. Thomas	Manuscript near submission. ²
C ₆ H ₁₂ O ₄ ((C ₃ H ₆ O ₂) ₂)	(hydroxyacetone) ₂	E. Schnitzler N. Seifert J. Thomas	ab initio calculations completed; assignment in progress.
C ₈ H ₈ O ₂	<i>m</i> -toluic acid	E. Schnitzler N. Seifert M. Al-Jabiri	2 conformers assigned.
C ₈ H ₁₀ O ₃ (C ₈ H ₈ O ₂ -H ₂ O)	<i>m</i> -toluic acid - water	E. Schnitzler N. Seifert M. Al-Jabiri	ab initio calculations completed; assignment in progress.
C ₈ H ₁₁ NO ₃ (C ₈ H ₈ O ₃ -NH ₃)	methyl salicylate - ammonia	J. Thomas J. Kwak	Ab initio calculations completed; assignment in progress. ²
C ₁₀ H ₁₆ O	perillyl alcohol	J. Thomas	Spectrum assigned. ²
C ₁₀ H ₁₆ O ₆ (C ₅ H ₈ O ₃) ₂	(tetrahydro-2-furoic acid) ₂	J. Thomas	Assignment in progress. ²
C ₁₀ H ₁₈ O ₂ (C ₁₀ H ₁₆ O-H ₂ O)	perillyl alcohol - water	J. Thomas	Assignment in progress. ²

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
$C_{10}H_{18}O_4$ ($C_{10}H_{16}O_3-H_2O$)	pinonic acid - water	E. Schnitzler	Assignment in progress.

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<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C ₄ HNO ₂ (CO ₂ ---HCCCN)	T-shaped carbon dioxide-cyanoacetylene complex	Kang; Novick; Kukolich	J. Mol. Spectrosc. 342 62 – 72, (2017)
C ₂ F ₆ O ₂ (CF ₃ OOCF ₃) (¹³ CF ₃ OOCF ₃)	Bis(trifluoromethyl) peroxide ¹³ C isotopologue	Kang; Novick Kang; Novick	Presentation in ISMS Searching for ¹⁸ O-iso
Ċ ₂ F ₂ N (ĊF ₂ CN)	1,1-difluorocyanomethyl radical	Kang; Novick	Spectrum assigned Presentation in ISMS
C ₃ F ₆ O (CF ₃ -CFOCF ₂)	Hexafluoropropylene	Kang; Shipman; Pate	Spectrum assigned Presentation in ISMS
C ₄ DNO ₂ (CO ₂ ---DCCCN)	Deuterated T-shaped carbon dioxide cyanoacetylene complex	Kang; Novick; Kukolich	Transitions observed working on hf structures
C ₃ HN ₃ N ₂ ---HCCCN	Linear nitrogen-cyanoacetylene complex	Kang; Novick	Spectrum assigned working on hf structures
C ₆ HDN (HCCCN---DCCCN)	HCCCN---DCCCN complex	Kang; Novick; Kukolich	Spectrum assigned working on hf structures
C ₆ HDN (DCCCN---HCCCN)	DCCCN---HCCCN complex	Kang; Novick; Kukolich	Spectrum assigned working on hf structures
C ₆ D ₂ N (DCCCN---DCCCN)	DCCCN dimer complex	Kang; Novick; Kukolich	Spectrum assigned working on hf structures
C ₃ F ₆ O (CF ₃ O-CF=CF ₂)	Perfluoromethylvinylether	Kang; Brown; Pate	Spectrum assigned
C ₇ H ₃ F ₅ O (CH ₃ O-C ₆ F ₅)	2,3,4,5,6-perfluoroansiol	Kang; Pate	Spectrum assigned
C ₃ H ₁₀ Si ((CH ₃) ₃ SiH)	Trimethylsilane	Kang; Novick	Spectrum assigned Manuscript in preparation

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C ₅ H ₁₀ Si ((CH ₃) ₃ SiCCH)	Trimethylsilylacetylene	Kang; Novick	Spectrum assigned Presentation in ISMS Manuscript in preparation
C ₇ H ₁₀ Si ((CH ₃) ₃ SiCCCCH)	Trimethylsilyldiacetylene	Kang; Novick	Spectrum assigned Presentation in ISMS Manuscript in preparation
C ₆ H ₉ NSi ((CH ₃) ₃ SiCCCN)	Trimethylsilylacetylene cyanide	Kang; Novick	Spectrum assigned Presentation in ISMS Manuscript in preparation
C ₃ H ₃ NSi (SiH ₃ CCCN)	Silylacetylene cyanide	Kang; Novick	Spectrum observed Work in progress

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<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
BH ₄ Li [LiBH ₄]	Lithium tetrahydroborate	Y. Kawashima E. Hirota ^a	Excited vibrational states, work in progress.
BH ₄ K [KBH ₄]	Potassium tetrahydroborate	Y. Kawashima E. Hirota ^a	Excited vibrational states, work almost completed.
CH ₆ O [CD ₄ -- H ₂ O, HDO, D ₂ O]	Methane-water	Y. Kawashima L.H.Coudert ^c	Manuscript prepared
CF ₈ S [CF ₃ SF ₅]	Potassium tetrahydroborate	E. Hirota ^a , Y. Kawashima K. Ajiki	<i>J. Mol. Spectrosc.</i> 342 (2017) 100
C ₂ H ₄ N ₂ S [N ₂ -(CH ₂) ₂ S]	Dinitrogen-ethylene sulfide	S. Iwano Y. Kawashimna E. Hirota ^a	Spectra assigned for N ₂ , N ¹⁵ N, ¹⁵ N ₂ species
C ₂ H ₆ N ₂ O [N ₂ -(CH ₃) ₂ O]	Dinitrogen-dimethyl ether	Y. Kawashima E. Hirota ^a	Spectra assigned for N ₂ , N ¹⁵ N, ¹⁵ N ₂ species.
C ₂ H ₆ N ₂ S [N ₂ -(CH ₃) ₂ S]	Dinitrogen-dimethyl sulfide	S. Iwano Y. Kawashima E. Hirota ^a	Spectra assigned for N ₂ , N ¹⁵ N, ¹⁵ N ₂ species
C ₃ H ₅ NO [CH ₂ =CHCONH ₂]	Acrylamide	T. Usami Y. Kawashima	Isotopomers assigned
C ₃ H ₆ N ₂ O ₂ [NH ₂ COCH ₂ CONH ₂]	Malonamide	T. Usami E. Hirota ^a R. D. Suenram ^b	Manuscript prepared.
C ₃ H ₆ O [CH ₃ CH(O)CH ₂]	Propylene oxide	E. Hirota ^a Y. Kawashima	Work completed.

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C ₃ H ₆ O ₂ S [CO ₂ -(CH ₃) ₂ S]	Carbon dioxide-dimethyl-sulfide	Y. Kawashima S. Iwano E. Hirota ^a	Work in progress, two states assigned.
C ₃ H ₇ NO [HCONHCH ₂ CH ₃]	<i>N</i> -Ethylformamide	K. Ohba T. Usami Y. Kawashima E. Hirota ^a	Second conformer assigned.
C ₃ H ₈ OS [OHCH ₂ CH ₂ CH ₂ SH]	3-Mercapto-1- propanol	Y. Tanaka Y. Kawashima E. Hirota ^a	Five rotamers assigned.
C ₄ H ₆ O ₂ [CO-CH ₃ CH(O)CH ₂]	Carbon monoxide -propylene oxide	Y. Kawashima H. Mizuno E. Hirota ^a	<i>Anti</i> form: normal, ¹³ C, C ¹⁸ O species, assigned.
C ₄ H ₆ O ₃ [CH ₃ CH(CO ₃)CH ₂]	Propylene carbonate	T. Kinjo Y. Kawashima E. Hirota ^a	Normal, ¹³ C (4 species), ¹⁸ O (3 species) assigned.
C ₄ H ₇ NO ₂ [(CH ₃ CO) ₂ NH]	Diacetamide	Y. Kawashima R. D. Suenram ^b E. Hirota ^a	<i>A</i> state and <i>E</i> state assigned.
C ₄ H ₈ N ₂ O ₂ [CH ₃ CONHCH ₂ CONH ₂]	<i>N</i> _α -Acetylglycinamide	Y. Kawashima R. J. Lavrich ^d R. D. Suenram ^b E. Hirota ^a	<i>A</i> state assigned, <i>E</i> state assignment in progress.
C ₄ H ₉ NO [CH ₃ CONHCH ₂ CH ₃]	<i>N</i> -Ethylacetamide	T. Usami K. Ohba Y. Kawashima R. D. Suenram ^b E. Hirota ^a	Manuscript prepared.
C ₄ H ₁₀ O [CH ₃ CH ₂ CH ₂ CH ₂ OH]	<i>n</i> -Butanol	T. Uzuyama Y. Kawashima E. Hirota ^a	Seven rotamers assigned.

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C ₄ H ₁₀ O [CH(CH ₃) ₂ CH ₂ OH]	Isobutanol	T. Uzuyama Y. Kawashima E. Hirota ^a	Four rotamers assigned.
C ₄ H ₁₀ S [CH ₃ CH ₂ CH ₂ CH ₂ SH]	<i>n</i> -Butanethiol	Y. Tanaka Y. Kawashima E. Hirota ^a	Seven rotamers, one for SD assigned.
C ₄ H ₁₀ S [CH(CH ₃) ₂ CH ₂ SH]	Isobutanethiol	Y. Tanaka Y. Kawashima E. Hirota ^a	Three rotamers, ³⁴ S, ¹³ C species assigned.
C ₅ H ₁₀ O [CH ₂ CH ₂ CH ₂ CH ₂ CHOH]	Cyclopentanol	Y. Kawashima E. Hirota ^a B. Carroll ^f G. Blake ^f	Work in progress
C ₅ H ₁₂ O [CH ₃ CH ₂ CH ₂ CH ₂ CH ₂ OH]	<i>n</i> -pentanol	Y. Kawashima Y. Komamine E. Hirota ^a	Six isomers assigned.
C ₅ H ₁₂ O [H ₃ CCH ₂ CH(CH ₃)CH ₂ OH]	2-Methyl-1-butanol	Y. Kawashima N. Koshimae Y. Tanimoto E. Hirota ^a	Three conformers assigned.
C ₅ H ₁₂ S [(CH ₃) ₃ CSCH ₃]	<i>Tert</i> -butyl methyl sulfide	Y. Kawashima R. Watanabe E. Hirota ^a	Normal, ³⁴ S, ¹³ C species assigned.
C ₆ H ₆ O [(HCCCH ₂) ₂ O]	Dipropargyl ether	T. Usami Y. Kawashima	Work almost completed
C ₆ H ₆ S [C ₆ H ₅ SH]	Thiophenol	R. Jono ^e A. Hino ^e M. Onda ^e Y. Kawashima	Normal, D, ³⁴ S, ¹³ C species assigned
C ₆ H ₁₀ [CH=CHCH ₂ CH ₂ CH ₂ CH ₂]	Cyclohexene	Y. Kawashima E. Hirota ^a	Isotopomer assigned.

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C ₆ H ₁₀ O [CH ₃ CH ₂ CH ₂ CH=CHCHO]	<i>Trans</i> -2-hexenal	R. Yokoyama Y. Kawashima E. Hirota ^a	Four conformers assigned
C ₆ H ₁₀ O ₂ [O(CO)CH ₂ CH ₂ CH(CH ₂ CH ₃)]	γ -Hexanolactone	T. Takimoto ^c N. Kuze ^e Y. Kawashima	Three conformers assigned
C ₆ H ₁₄ O [CH ₃ CH ₂ CH ₂ CH ₂ CH ₂ CH ₂ OH]	<i>n</i> -Hexanol	Y. Hosoya Y. Kawashima E. Hirota ^a	Three conformers assigned
C ₈ H ₁₂ [CH=CHCH ₂ CH(CH=CH ₂)CH ₂ CH ₂]	4-Vinyl-1-cyclohexene	Y. Nakanishi Y. Kawashima R. J. Lavrich ^d R. D. Suenram ^b E. Hirota ^a	Two conformers assigned.
C ₉ H ₁₆ O ₂ [O(CO)CH ₂ CH(CH ₃)CH((CH ₂) ₃ CH ₃)]	5-Butyl-4-methyl tetrahydrofuran-2-one (Whisky lactone)	Y. Kawashima R. Katsuragi E. Hirota ^a	<i>J. Mol. Spectrosc.</i> 335 (2017) 27

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<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
BrH ₃ O (H ₂ O...HBr)	Water...hydrogen bromide	BP, OD, LP, ZK, <i>Bri</i>	FTMW: isotopic work+dipole moment - completed, ms. in prep.
Cl ₂ H ₆ O ₂ ((H ₂ O) ₂ (HCl) ₂)	Water...hydrogen chloride (2/2)	<i>Vir</i> , ZK	Assigned in chirped pulse FTMW, ms. in prep.
ClH ₇ O ₃ ((H ₂ O) ₃ HCl)	Water...hydrogen chloride (3/1)	<i>Vir</i> , ZK	Assigned in chirped pulse FTMW, ms in prep.
H ₁₂ O ₆ ((H ₂ O) ₆)	Water hexamer	<i>Vir</i> , ZK	All 64 combinations of ¹⁶ O/ ¹⁸ O for each of three hexamer conformers observed and analysed.
FH ₃ O ((H ₂ O...HF))	Water...hydrogen fluoride	ZK, <i>NN</i>	MMW spectrum, new analysis
ArClH ₃ O ((H ₂ O...HCl)...Ar)	(Water...hydrogen chloride)...argon	EBJ, ZK, LP, <i>Vir</i>	FTMW (Balle-Flygare and chirped pulse): parent+D+ ³⁷ Cl+ ¹⁸ O, dipole moment, ms. in prep.
C ₄ H ₇ Cl ((C ₄ H ₆ ...HCl))	1,3-butadiene...hydrogen chloride	ZK, <i>Bri</i>	FTMW: partial assignment
C ₅ H ₈ N ₂ O	2-aminopyridine... H ₂ O cyclic dimer	AK, EBJ, ZK, LP, <i>Rennes</i>	FTMW: nearing completion, more isotopic species measured
C ₂ Cl ₃ N (Cl ₃ CCN)	Trichloroacetonitrile	ZK, LP, EBJ	FTMW: hyperfine from 4 nuclei resolved and fitted
C ₂ Cl ₃ F ₃ (Cl ₃ CCF ₃)	CFC-113a	<i>Bilbao</i> , LP, EBJ, ZK	Chirped pulse+cavity FTMW, MMW
C ₂ Cl ₄ F ₂ (Cl ₃ CCClF ₂)	CFC-112a	<i>Bilbao</i> , EBJ, ZK	Chirped pulse+cavity FTMW, ms. in prep.
C ₂ H ₂ ClF ₃ (ClH ₂ CCF ₃)	HCFC-133a	<i>Bilbao</i> , LP, EBJ, ZK	Chirped pulse+cavity FTMW, MMW, <i>JMS</i> 337 ,37(2017).
C ₂ H ₃ NO (CH ₃ NCO)	Methyl isocyanate	<i>Ohio</i> , <i>Val</i> , <i>Rennes</i> , ZK	Both single ¹³ C species assigned in enriched spectra, <i>K_a</i> >3 transitions assigned for the parent

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C ₂ H ₃ NS (CH ₃ NCS)	Methyl isothiocyanate	Ohio, ZK	FASSST spectrum partially analysed
C ₂ H ₆ N ₂ O (H ₂ NCH ₂ CONH ₂)	Glycine amide	ZK, LP, Rennes, Val	MMW spectrum + supersonic expansion FTMW, deuterated species in prog.
C ₂ H ₇ N (C ₂ H ₅ NH ₂)	Ethylamine	Ohio, AK, ZK, Koln	Spectrum up to 1 THz, torsion + inversion analysis in prog.
C ₃ H ₅ Cl (H ₃ CCCl=CH ₂)	2-chloropropene	ZK	Chirped pulse FTMW+MMW, <i>Acta Physica Polonica</i> 131 ,311(2017)
C ₃ H ₆ O ₃	Lactic acid, <i>AaT</i>	Vir, ZK,EBJ	Chirped pulse FTMW: new conformer of lactic acid, three clusters with H ₂ O and two lactide conformers, ms. in prep.
C ₃ H ₈ O ₄ , C ₃ H ₁₀ O ₅ , C ₃ H ₁₂ O ₆	LA+H ₂ O LA+(H ₂ O) ₂ La+ (H ₂ O) ₃		
C ₆ H ₈ O ₄	Lactide		
C ₃ H ₈ O (CH ₃ CH ₂ CH ₂ OH)	<i>n</i> -propanol	ZK, Ohio, JPL	<i>T</i> series of conformers: in progress
CH ₂ Cl ₂ C ₃ H ₂ ClN C ₄ H ₄ N ₂	Methylene chloride 2-chloroacrylonitrile Pyrimidine	OD, ZK, Bold	FTMW: dipole moment from Stark effect under resolved hfs from two quadrupolar nuclei
C ₅ H ₆ N ₂	2-Aminopyridine	ZK, LP	MMW+FTMW: c.d., hyperfine, g.s. + inversion satellite
C ₅ H ₈	Isoprene	EBJ, LP, OD, ZK, JPL	MMW+FTMW: parent+ ¹³ C
C ₅ H ₁₂ O (C(CH ₃) ₃ CCH ₂ OH)	Neopentyl alcohol	LP, ZK, Goet	MMW+FTMW: two conformers assigned
C ₆ H ₄ Cl ₂	1,2-dichlorobenzene	ZK, LP, EBJ	Chirped pulse FTMW+MMW, g.s.+vibrational satellites+structure
C ₇ H ₅ N	Benzonitrile	Wisc, ZK	g.s.+e.s., MMW, ms. submitted
C ₇ H ₆ O ₂	Salicyl aldehyde	ODo, LP, ZK, Kiel	MMW+FTMW: complete geometry determination, <i>JMS</i> 335 ,3(2017).
C ₇ H ₈	Toluene	Kha, ZK, LP	high <i>J</i> and <i>m</i> , <i>JMS</i> 339 ,31(2017).
C ₈ H ₇ N	<i>p</i> -Cyanotoluene	EBJ, ZK, LP	MMW+FTMW: c.d. + internal rot., in progress
C ₁₀ H ₁₆ O,	Thujone	Hamb, ZK	Chirped pulse FTMW, heavy atom molecular backbones from ¹³ C and ¹⁸ O in natural abundance.
C ₁₀ H ₁₈ O ₂ , C ₁₀ H ₂₀ O ₃	Thujone+H ₂ O Thujone+(H ₂ O) ₂		Several cluster conformers assigned.

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C ₁₀ H ₁₅ F C ₁₀ H ₁₅ Cl C ₁₀ H ₁₅ Br C ₁₀ H ₁₅ I	1-fluoro-adamantane 1-chloro-adamantane 1-bromo-adamantane 1-iodo-adamantane	BP, ZK, LP, <i>Bri</i>	MMW + FTMW, electric dipole moment, completed
C ₂₀ H ₁₀ , C ₂₀ H ₁₂ O,	Corannulene Corannulene+H ₂ O	<i>Hamb</i> , ZK	Chirped pulse FTMW, structure of monomer and cluster with water, <i>PCCP</i> 19 ,14214(2017).
ClNO ₃ (ClONO ₂)	Chlorine nitrate	<i>Ohio</i> , ZK, EBJ	FASSST spectrum: further vibrational satellites in prog.
HN ₃	Hydrazoic acid	<i>Pra</i> , ZK + <i>Wisc</i>	MMW+SMW, global analysis of g.s.+v5=1+v6=1, <i>JMS</i> 337 ,27(2017). Analysis of higher states in prog.
ANALYSIS	Programs for ROtational SPEctroscopy (PROSPE)		http://info.ifpan.edu.pl/~kisiel/prospe.htm

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<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
CH ₄ O (CH ₃ OH, ¹³ CH ₃ OH CH ₃ ¹⁸ OH, CH ₃ OD)	Methanol	F. Matsuhima K. Kobayashi	ground and CO stretching vibrational state, far- infrared spectrum and Zeeman effect
CH ₄ S (CH ₃ SH, CD ₃ SH)	Methanthiol	K. Kobayashi	mm-wave spectrum 1 st and 2 nd excited torsional states assigned <i>G.S. J. Mol. Spectrosc.</i> 337 (2017) 32-36
CH ₅ N (CH ₃ NH ₂)	Methylamine	K. Kobayashi	mm-wave spectrum prep. spectrum atlas
C ₂ H ₄ O ₂ (HCOOCH ₃ , DCOOCH ₃ H ¹³ COOCH ₃ HCOO ¹³ CH ₃)	Methyl formate	K. Kobayashi ^{1,2,3,4}	HCOOCH ₃ , two new vibrational states assigned Infrared spectrum HCOO ¹³ CH ₃ vt=2 <i>J. Mol. Spectrosc.</i> 343 (2018) 50-53
C ₂ H ₆ O (C ₂ H ₅ OH)	Ethanol	K. Kobayashi	Spectrum assigned
C ₂ O (¹³ CCO, C ¹³ CO ¹³ C ¹³ CO, CC ¹⁸ O)	Ketenylidene	K. Kobayashi ⁵	Spectrum assigned
C ₃ H ₅ N (CH ₃ CH ₂ CN)	Ethyl cyanide	Y. Fukuyama ⁶ K. Kobayashi H. Odashima ⁷	prep. spectrum atlas

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
$C_3H_6O_2$ (CH_3COOCH_3)	Methyl acetate	K. Kobayashi I. Kleiner ⁸	mm-wave spectrum
C_3H_6NO	Isoxazole Oxazole	K. Kobayashi	Ground state assigned In preparation of the manuscript
C_3H_8O ($CH_3OC_2H_5$)	Ethyl methyl ether	K. Kobayashi ^{1,2}	mm-wave spectrum skeletal torsion $v=2, 3$
C_4H_4S	Thiophene	K. Kobayashi	40-110 GHz Ground state assigned

1. In collaboration with M. Fujitake (Kanazawa University, Japan).
2. In collaboration with N. Ohashi (Kanazawa University, Japan).
3. In collaboration with D. Tokaryk (University of New Brunswick, Canada) and B. Billingham (Canadian Light Source. Inc., University of Saskatchewan, Canada).
4. Department of Physics, Meiji University, Mita Kawasaki 214-8571, Japan.
5. In collaboration with S. Saito (Fukui University, Japan) for mm spectrum and with Y. Sumiyoshi and Y. Endo (University of Tokyo, Japan) for FT mw spectrum.
6. SPring-8/JASRI, Sayo-cho, Sayo-gun, Hyogo, 679-5148, Japan.
7. In collaboration with S. Shipman (New College of Florida, USA).
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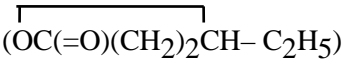
<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAMES OF INVESTIGATORS</u>	<u>PRESENT STAGE OF PROGRESS</u>
C₆Fe₂O₆S₂ Fe₂S₂(CO)₆	Diiron disulfur hexacarbonyl	A. M. Pejlovas Z. Z. Zhou S. G. Kukolich	Scanning in progress
C₆H₃MnO₅	Methyl manganese pentacarbonyl	Z. Z. Zhou A. M. Pejlovas S. G. Kukolich	Scanning in progress
C₁₂H₁₂FeO₄	Ferrocenecarboxylic acid – formic acid dimer	A. M. Pejlovas Z. Z. Zhou S.G. Kukolich	Scanning in progress
C₁₁H₁₀FeO₂	Ferrocenecarboxylic acid	A. M. Pejlovas Z. Z. Zhou S.G. Kukolich	<i>J. Mol. Spectrosc.</i> 338 , 77-80 (2017)
C₆H₂N₂	H – C ≡ C – C ≡ N · · H – C ≡ C – C ≡ N	L. Kang, , P. Davis, I. Dorell , K. Li, A. M. Daly, S. E. Novick, S. G. Kukolich	<i>J. Mol. Spectrosc.</i> 321 , 5-12, (2016)
C₃H₅NS₂	2-thiazoline-2-thiol	A. M. Pejlovas Z. Z. Zhou S. G. Kukolich	Scanning in progress
C₈H₈BN	*B-N naphthalene, 4a,8a-Azabora-naphthalene	A. Pejlovas, A. M. Daly, A. Ashe III, S. Kukolich	<i>J. Chem. Phys.</i> 144 , 114303 (2016).

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAMES OF INVESTIGATORS</u>	<u>PRESENT STAGE OF PROGRESS</u>
$C_4H_3NO_2$	Malemide	Aaron M. Pejlovas, Onur Oncer, Lu Kang	<i>J. Mol. Spectrosc.</i> 319 , 26-29 (2016)
$C_5H_5NO_4$	Malemide – Formic Acid Dimer	Aaron M. Pejlovas and Stephen G. Kukolich	<i>J. Mol. Spectrosc.</i> 321 , 1-4 (2016)
$C_8H_6O_4$	Tropolone – Formic Acid Dimer	Aaron M. Pejlovas, Agapito Serrato III, Wei Lin, Stephen G. Kukolich	<i>J Chem Phys</i> 144 (4), 044306/1-044306/3. (2016)
C_4HNO_2	$H - C \equiv C - C \equiv N \cdot$ $\cdot O=C=O$	Lu Kang, Philip Davis, Ian Dorell, Kexin Li, Onur Oncer, Lucy Wang, Stewart E. Novick, Stephen G. Kukolich	<i>preparation. Mol. Spectrosc.</i> 342 , 62-72 (2017)
C_6H_6BCl	1-Chloroborepin	Aaron M. Pejlovas, Zunwu Zhou, Arthur Ashe III, Stephen G. Kukolich	<i>J. Phys. Chem. A.</i> 122 (6) 1542-1549 (2018)
$C_9H_6O_2$	Phenylpropionic Acid	Aaron M. Pejlovas, Zunwu Zhou, Wei Lin, Stephen G. Kukolich	Manuscript in preparation
$C_{10}H_8O_4$	Phenylpropionic Acid – Formic Acid Dimer	Aaron M. Pejlovas, Zunwu Zhou, Wei Lin, Stephen G. Kukolich	Scanning in progress

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<u>FORMULA</u>		<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
CF ₂ NOPS	F ₂ P(S)-NCO	Difluorothiophosphoryl isocyanate	S. Watanabe	Spectrum Assigned.
CF ₂ NPS ₂	F ₂ P(S)-NCS	Difluorothiophosphoryl isothiocyanate	S. Watanabe	Spectrum Assigned.
C ₂ H ₃ N ₃ O ₂	(CH ₃ OC(=O)N ₃)	Methyl azidoformate	S. Watanabe N. Kuze	Spectrum Assigned.
C ₃ H ₃ NO ₃	(CH ₃ OC(=O)NCO)	Methoxycarbonyl isocyanate	S. Watanabe N. Kuze	Spectrum Assigned.
C ₃ H ₅ NO	(CH ₃ CH ₂ -OCN)	Ethyl cyanate	T. Sakaizumi N. Kuze	Manuscript in prep.
C ₃ H ₅ NO	(CH ₃ CH=CH-NO)	1-Nitrosopropene	T. Sakaizumi N. Kuze	V ₃ (ν=1) determined. Manuscript in prep.
C ₄ H ₇ NO	(CH ₂ =C(CH ₃)CH=NOH)	2-methyl-2-propenal Oxime	N. Kuze	<i>J. Mol. Spectrosc.</i> , 337 , 17-26 (2017).
C ₄ H ₇ NO	(HNCH ₂ (CH ₂) ₂ C=O)	2-Pyrrolidone	N. Kuze	Manuscript in prep.
C ₄ H ₇ NO	(CH ₂ (CH ₂) ₂ C=NOH)	Cyclobutanone oxime	E. Sato N. Kuze	Manuscript in prep.
C ₄ H ₉ NO	(CH ₃ (CH ₂) ₂ CH=NOH)	(Z)-n-Butyraldehyde oxime	O. Ohashi	Manuscript in prep.
C ₆ H ₁₁ NO	(HNCH ₂ (CH ₂) ₄ C=O)	ε-Caprolactam	N. Kuze	Manuscript in prep.
C ₆ H ₁₂ O ₂	(CH ₃) ₃ C(=O)COCH ₃)	Methyl Trimethylacetate	N. Kuze	Spectrum Assigned.

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<u>FORMULA</u>		<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C ₆ H ₁₁ NO		γ -Hexanolactone	T. Takimoto	Spectrum Assigned

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(Entries marked with * are collaborative studies between this laboratory and that of N. R. Walker, School of Chemistry, Bedson Building, Newcastle University, Newcastle-upon-Tyne, NE1 7RU, UK)

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
AgH ₂ IO*	H ₂ O...Ag-I	C. Medcraft, E. Goulgoula, J. C. Mullaney, S. Blanco	Published: <i>J. Chem. Phys.</i> 147 , 234308 (2017).
AgH ₃ IN*	H ₃ N...Ag-I	D. Bittner	Published: <i>J. Chem. Phys.</i> 147 , 234308 (2017).
AuH ₃ IN*	H ₃ N...Au-I	D. Bittner, S.L. Stephens	Spectrum assigned.
BrH ₃ O	H ₂ O...H-Br	A. P. Suckley	Published: <i>Chem. Phys. Lett.</i> , 150 , 153 (1988). Further work with Z. Kisiel.
CCIFPt*	FCPtCl	D. Bittner, G. Cooper, C. Medcraft	Spectra of isotopologues assigned.
CF ₂ Pt*	FCPtF	D. Bittner, G. Cooper, C. Medcraft	Spectra of isotopologues assigned.
CH ₃ F ₃ IP*	H ₃ P...I-CF ₃	S. L. Stephens	Spectrum assigned.
CH ₄ ArN ₂ O*	Urea...Ar	C. Medcraft	Spectrum assigned
CH ₄ ArN ₂ S*	Thiourea...Ar	C. Medcraft	Spectrum assigned
CH ₄ ClF	CH ₄ ...Cl-F	D.G. Lister	Spectrum assigned.
CH ₅ F	CH ₄ ...H-F	D.G. Lister	With F.J. Lovas at NIST. Isotopic work complete.
CH ₆ N ₂ OS*	Thiourea...H ₂ O	C. Medcraft	Spectrum assigned.
C ₂ H ₂ AgI*	C ₂ H ₂ ...AgI	S. L. Stephens	Spectrum assigned.

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C ₂ H ₂ CuF*	C ₂ H ₂ ...Cu-F	S. L. Stephens, D. P. Zaleski	Spectrum assigned, isotopic work
C ₂ H ₂ CuI*	C ₂ H ₂ ...Cu-I	S. L. Stephens, D Bittner	Spectrum assigned.
C ₂ H ₄ AgF*	C ₂ H ₄ ...Ag-F	S. L. Stephens	Spectrum assigned.
C ₂ H ₄ AgI*	C ₂ H ₄ ...Ag-I	S. L. Stephens	Spectrum assigned.
C ₂ H ₄ AuI*	C ₂ H ₄ ...Au-I	S. L. Stephens, M. Sprawling, D. P. Zaleski	Spectra of isotopologues assigned.
C ₂ H ₄ CuF*	C ₂ H ₄ ...Cu-F	S. L. Stephens	Spectrum assigned.
C ₂ H ₄ CuI*	C ₂ H ₄ ...Cu-I	S. L. Stephens	Spectrum assigned.
C ₂ H ₅ BrS	(CH ₂) ₂ S...H-Br	S. Batten	¹³ C and ³⁴ S species.
C ₂ H ₅ N ₃ O ₂ *	CH ₄ N ₂ O...HNCO (urea...isocyanic acid)	J. C. Mullaney, C. Medcraft	Published: <i>Phys. Chem. Chem. Phys.</i> 19 , 25080 (2017).
C ₃ H ₂ F ₃ I*	C ₂ H ₂ ...ICF ₃	S. L. Stephens	Manuscript in preparation
C ₃ H ₉ AgIN*	(CH ₃) ₃ N...Ag-I	D. Bittner, S. L. Stephens	Spectrum assigned. Manuscript in preparation.
C ₃ H ₉ F ₆ NS*	(CH ₃) ₃ N...SF ₆	D. Bittner	Spectrum assigned.
C ₄ H ₆ O	(CH ₂) ₂ O...HC≡CH	S. Batten	All singly substituted ¹³ C species assigned.
C ₄ H ₈ N ₄ O	Urea...imidazole	S. Blanco (Valladolid), J. C. Mullaney, C. Medcraft	Spectrum assigned, isotopic work.
FIPt*	FPtI	D. Bittner, G. Cooper, C. Medcraft	Spectra of isotopologues assigned.
H ₃ IS	H ₂ S...H-I	A. P. Suckley	Spectrum assigned. Further work.

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<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C ₂ H ₄ O ₅ S (CH ₃ COOSO ₂ OH)	Acetic sulfuric anhydride	A.K. Huff C.J. Smith R.B. Mackenzie K.R. Leopold	<i>J. Phys. Chem. A</i> 2017 , 121, 5659-5664.
C ₃ H ₄ O ₅ S (CH ₂ =CHCOOSO ₂ OH)	Acrylic sulfuric Anhydride	C.J. Smith A.K. Huff R.B. Mackenzie K.R. Leopold	<i>J. Phys. Chem. A</i> 2017 , 121, 9074-9080.
C ₆ H ₃ O ₂ NF ₂ (2,6- difluoropyridine- CO ₂)	2,6 difluoropyridine- CO ₂ complex	C.T. Dewberry J. Mueller R.B. Mackenzie M.D. Marshall B.A. Timp H.O. Leung K.R. Leopold	<i>J. Mol. Spectrosc.</i> 2017 , 1146, 373-379.
C ₂ H ₆ O ₆ S (CH ₃ COOSO ₂ OH-H ₂ O)	Acetic sulfuric anhydride – H ₂ O complex	C.J. Smith A.K. Huff R.B. Mackenzie K.R. Leopold	Submitted.

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
$C_3H_2O_5S$ ($HC\equiv C-COOSO_2OH$)	Propiolic sulfuric anhydride	C.J. Smith A. Huff R.B. Mackenzie K.R. Leopold	Three isotopologues observed and analyzed; Manuscript in preparation.
$C_2HO_5SF_3$ (CF_3COOSO_2OH)	Trifluoroacetic sulfuric anhydride	A.K. Huff C.J. Smith R.B. Mackenzie K.R. Leopold	Manuscript in preparation.
C_2H_4OS (CH_3COSH)	Thioacetic acid	C.J. Smith A.K. Huff K.R. Leopold	<i>syn</i> and <i>anti</i> conformers; internal rotation; Manuscript in preparation.
$C_2H_6O_2S$ ($CH_3COSH-H_2O$)	Thioacetic acid-water complex	A.K. Huff C.J. Smith K.R. Leopold	A-state fit; Work in progress.
S_2O_5 SO_3-SO_2	SO_3-SO_2 complex	R.B. Mackenzie A.K. Huff K.R. Leopold	Manuscript in preparation.
CH_3ArI (CH_3I-Ar)	Methyl iodide - argon complex	A.K. Huff C.J. Smith K.R. Leopold	A-state fit; Work in progress.
C_5H_7ON (pyridine - water)	pyridine - water complex (HOD)	R.B. Mackenzie C.T. Dewberry C.J. Smith R.D. Corneilus K.R. Leopold	Spectra assigned and fit for both HOD and DOH species.
$C_7H_5NF_2$ (2,6-difluoropyridine-HCCH)	2,6-difluoropyridine-HCCH complex	C.T. Dewberry R.B. Mackenzie K.R. Leopold	HCCH, DCCD, and HCCD isotopologues; Manuscript in preparation.

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
$C_6H_5S_2N$ (pyridine-CS ₂)	$C_5H_5N-CS_2$ (pyridine-CS ₂ complex)	B. Timp, S. Iyer, K.R. Leopold	Spectra observed.
$C_3H_9ArO_3NS$	$(CH_3)_3N-SO_3-Ar$ complex	C.T. Dewberry R.B. Mackenzie B.A. Timp K.R. Leopold	Spectra observed.
$C_2H_6O_3$	acetic acid - water complex	G. Sedo S. Wu K.R. Leopold	Spectra assigned and fit $CH_3COOH-H_2O$ (¹³ CH ₃) Internal rotation barrier determined.
$ArHNO_3$	nitric acid – argon complex	J.L. Doran G. Sedo K.R. Leopold	Spectrum observed, rotational assignments.
$C_5H_{11}N_3$ ((CH ₃) ₃ N-HCN-HCN)	$(CH_3)_3N-HCN-HCN$ complex	M. Craddock C.S. Brauer K.R. Leopold	11 isotopologues assigned and analyzed.
$C_3H_{11}NF_2$ ((CH ₃) ₃ N-HF-HF)	$(CH_3)_3N-HF-HF$ complex	C.S. Brauer M. Craddock G. Sedo S. W. Hunt K.R. Leopold	8 isotopologues assigned and analyzed Manuscript in preparation.
$C_7H_6O_2$ (CO ₂ -C ₆ H ₆)	CO ₂ -Benzene complex	J.L. Doran K.R. Leopold	Spectrum observed; not assigned.
BF_3H_2O (H ₂ O-BF ₃)	H ₂ O-BF ₃ complex	D.L. Fiacco S.W. Hunt K. J. Higgins M.E. Ott K.R. Leopold	6 isotopologues observed; Internal motion

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
CH ₃ BF ₄ (CH ₃ F-BF ₃)	methyl fluoride- BF ₃ complex	J.A. Phillips M. Canagaratna M.E. Ott K.R. Leopold	Spectra observed for ¹⁰ B and ¹¹ B species with CH ₃ F and ¹³ CH ₃ F; two internal rotor states.
C ₆ H ₁₈ GaN	(CH ₃) ₃ Ga-N(CH ₃) ₃ complex	S.W. Hunt D.L. Fiacco K.R. Leopold	¹⁴ N and ¹⁵ N species (CH ₃) ₃ Ga-N(CH ₃) ₃ observed.
ClH ₂ NO ₃ (HCl-HNO ₃)	HCl-nitric acid complex	M.E. Ott K.R. Leopold	a-type spectrum for ³⁵ Cl, ³⁷ Cl, ¹⁴ N, and ¹⁵ N and DNO ₃ species.

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<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C ₅ H ₆ OS	Thenyl alcohol	Juanes, Saragi, Lesarri	Assigned
C ₅ H ₆ S ₂	Thenyl mercaptan	Juanes, Saragi, Lesarri	Assigned
C ₅ H ₈ O ₃ (HCOOH...C ₄ H ₆ O)	Cyclobutanone ... Formic Acid	Evangelisti ^a , Spada ^a , Li ^a , Blanco, López, Lesarri, Grabow ^b , Caminati ^a	<i>Phys. Chem.</i> <i>Chem. Phys.</i> , 2017, 19, 204
C ₅ H ₁₃ NO ₂	2-aminopentane- 1,3-diol	Uriarte ^c , Cocinero ^c , Lesarri	In preparation
C ₅ H ₈ O ₃ (C ₅ H ₆ O ₂ ... H ₂ O)	Furfuryl alcohol ... H ₂ O	Juanes, Lesarri	<i>Chem. Eur. J.</i> , 2018, in press
C ₅ H ₈ O ₂ S (C ₅ H ₆ OS ... H ₂ O)	Furfuryl mercaptane ... H ₂ O	Juanes, Lesarri	<i>Chem. Eur. J.</i> , 2018, in press
C ₅ H ₈ O ₂ S (C ₅ H ₆ OS ... H ₂ O)	Thenyl alcohol ... H ₂ O	Juanes, Saragi, Lesarri	In preparation
C ₅ H ₈ OS ₂ (C ₅ H ₆ S ₂ ... H ₂ O)	Thenyl mercaptane ... H ₂ O	Juanes, Saragi, Lesarri	In preparation
C ₅ H ₅ F ₃ O ₂ (C ₄ H ₃ F ₃ O ... H ₂ C=O)	Trifluoroacetone... Formaldehyde	Pérez ^d , Lesarri, Jahn ^b Dewald ^b , Grabow ^b	Analysis in progress
C ₆ H ₂ F ₅ NO (C ₅ F ₅ N ... H ₂ C=O)	Pentafluoropyridine ... Formaldehyde	Gou ^e , Feng ^e , Juanes, Lesarri	Analysis in progress

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C ₆ H ₁₁ F	Fluorocyclohexane	Juanes, Vogt ^f , Demaison ^f , León, Lesarri, Rudolph ^f	<i>Phys. Chem. Chem. Phys.</i> , 2017, 19, 29162
C ₆ H ₁₂ O	Cyclohexanol	Li ^a , Spada ^a , Evangelis Juanes, Lesarri, Caminati ^a	In preparation
C ₆ H ₁₂ S	Cyclohexanethiol	Juanes, Lesarri, Evangelisti ^a ,	Assigned
C ₆ H ₁₄ O ₂ (C ₆ H ₁₂ O ··· H ₂ O)	Cyclohexanol ··· H ₂ O	Juanes, Lesarri, Evangelisti ^a , Li ^a , Caminati ^a	In preparation
C ₆ H ₁₄ O ₂ S (C ₆ H ₁₂ S ··· H ₂ O)	Cyclohexanethiol ··· H ₂ O	Juanes, Lesarri, Evangelisti ^a	Assigned
C ₆ H ₆ N ₂ O (C ₅ NH ₄ CONH ₂)	Nicotinamide	Caminati ^a , Cocinero ^c , Lesarri	In preparation
C ₆ H ₁₀ S ₂	Diallyl disulfide	Saragi, Juanes, Lesarri	Assigned
C ₆ H ₁₁ NO	ε-Caprolactam	Wachsmuth ^b , Vallejo Lesarri, Grabow ^b	Assigned
C ₆ H ₁₂ O	Oxepane	Borter ^b , Wachsmuth ^l Lesarri, Cocinero ^c , Grabow ^b	Assigned
C ₆ H ₁₃ N	Azepane	Wachsmuth ^b , Vallejo Grabow ^b , Lesarri,	Assigned
C ₇ H ₁₂	Ethynilcyclohexane	Vogt ^f , Demaison ^f , Rudolph ^f , Juanes, Fernandez, Lesarri	<i>J. Chem. Phys.</i> , 2018, 148, 6430
C ₇ H ₁₃ Cl	Chlorocycloheptane	Juanes, Lesarri	Partial assignment
C ₈ H ₁₂ N	Cyanocycloheptane	Wachsmuth ^b , Lesarri Grabow ^b	In preparation

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
$C_9H_{15}NO$	Pseudopelletierine	Vallejo, Écija ^c , Vogt ^f , Demaison ^f , Lesarri Basterretxea ^c , Cocinero ^c	<i>Chem. Eur. J.</i> , 2017, 23, 16412
$C_9H_{13}NO_3$ ($C_9H_{11}NO_2 \cdots H_2O$)	Benzocaine $\cdots H_2O$	Lesarri, Shipman ^g , Pate ^h	Assigned
$C_{10}H_{12}O_4$ ($C_5H_6O_2$) ₂	Furfuryl alcohol dimer	Juanes, Saragi, Lesarri	In preparation
$C_{10}H_{12}O_2S_2$ (C_5H_6OS) ₂	Thenyl alcohol dimer	Juanes, Saragi, Lesarri	In preparation
$C_{10}H_{12}N_2O$	Cotinine	Uriarte ^c , Pérez ^d , Caballero, Basterretxea ^c , Lesarri, Fernández ^c , Cocinero ^c	<i>Chem. Eur. J.</i> , 2017, 23, 7156
$C_{10}H_{12}O_3$ ($HOC_6H_3(OCH_3)C_2H_2CH_2OH$)	Coniferyl alcohol	Cocinero ^c , Lesarri	In preparation
$C_{10}H_{14}O_3$ ($HOC_6H_3CH_2CH_2CH(CO)CH_3$)	Zingerone	Cocinero ^c , Lesarri, Caminati ^a	In preparation
$C_{10}H_{16}O$	2-Decalone	Wachsmuth ^b , Jahn ^b , Blanco, Gigoso, Lesarri, Grabow ^b	<i>ChemPhysChem</i> , 2017, 18, 3620
$C_{11}H_{15}NO_2$ ($NH_2C_6H_4COO(CH_2)_3CH_3$)	Butamben	Lesarri, Cocinero ^c , Caminati ^a , Grabow ^b	In preparation
$C_{11}H_{15}NO_2$ ($NH_2C_6H_4COOCH_2CH(CH_3)_2$)	Isobutamben	Lesarri, Cocinero ^c	In preparation
$C_{12}H_{24}O_2$ ($C_6H_{12}O$) ₂	Cyclohexanol dimer	Juanes, León, Lesarri	In preparation
$C_{12}H_{10}S_2$	Diphenyl disulfide	Juanes, Saragi, Lesarri	Assigned
$C_{12}H_{22}S_2$	Dicyclohexyl disulfide	Saragi, Juanes, Lesarri	Assigned
$C_{12}H_{16}N_2O$ ($(C_6H_7N)_2 \cdots H_2O$)	Aniline dimer $\cdots H_2O$	Pérez ^d , León, Lesarri	Submitted

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
$C_{13}H_{11}O_4P$	Phenyl saligenin phosphate	Juanes, Saragi, Lesarri	Assigned
$C_{14}H_{13}O_4P$	Cresyl saligenin phosphate	Juanes, Saragi, Lesarri	Assigned
$C_{15}H_{22}O$	Nootkatone	Fernández-Samos, Juanes, Saragi	Assigned
$C_{15}H_{22}N_2$	Sparteine	Lesarri, Pinacho, Enríquez, Rubio, Jaraíz, Abad, Gigosos	<i>Phys. Chem. Chem. Phys.</i> , 2017, 19, 17553
$C_{15}H_{24}N_2O$ ($C_{15}H_{22}N_2 \cdots H_2O$)	Sparteine $\cdots H_2O$	Lesarri, Pinacho, Enríquez, Rubio, Jaraíz, Abad, Gigosos	<i>Phys. Chem. Chem. Phys.</i> , 2017, 19, 17553
$C_{18}H_{21}N_3$ (C_6H_7N) ₃	Aniline trimer	Pérez ^d , León, Lesarri, Pate ^h	Submitted

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FORMULA	NAME OF COMPOUND	NAME OF INVESTIGATOR	PRESENT STAGE OF PROGRESS
C ₂ HClF ₂ (<i>E</i>)-CF ³⁵ ClCHF, (<i>E</i>)-CF ³⁷ ClCHF, (<i>E</i>)- ¹³ CF ³⁵ ClCHF, (<i>E</i>)-CF ³⁵ Cl ¹³ CHF)	(<i>E</i>)-1-chloro- 1,2-difluoroethylene	Helen O. Leung Mark D. Marshall	Spectrum assigned. Manuscript in prep.
C ₂ H ₂ ClF ₃ (HF-(<i>E</i>)-CF ³⁵ ClCHF, HF-(<i>E</i>)-CF ³⁷ ClCHF DF-(<i>E</i>)-CF ³⁵ ClCHF DF-(<i>E</i>)-CF ³⁷ ClCHF)	hydrogen fluoride- (<i>E</i>)-1-chloro- 1,2-difluoroethylene	Helen O. Leung Mark D. Marshall	Spectrum assigned. Manuscript in prep.
C ₂ HArClF ₂ (Ar-(<i>E</i>)-CF ³⁵ ClCHF, Ar-(<i>E</i>)-CF ³⁷ ClCHF, Ar-(<i>E</i>)- ¹³ CF ³⁵ ClCHF, Ar-(<i>E</i>)-CF ³⁵ Cl ¹³ CHF)	argon-(<i>E</i>)-1-chloro- 1,2-difluoroethylene	Helen O. Leung Mark D. Marshall	Spectrum assigned.
C ₂ H ₃ ClF ₂ (H ³⁵ Cl- <i>trans</i> -CHFCHF, H ³⁷ Cl- <i>trans</i> -CHFCHF)	hydrogen chloride- <i>trans</i> -1,2-difluoro- ethylene	Helen O. Leung Mark D. Marshall	Spectrum assigned. Manuscript in prep.
C ₂ H ₃ ClF ₂ (H ³⁵ Cl- <i>cis</i> -CHFCHF, H ³⁷ Cl- <i>cis</i> -CHFCHF, H ³⁵ Cl- <i>cis</i> - ¹³ CHFCHF)	hydrogen chloride- <i>cis</i> -1,2-difluoro- ethylene	Helen O. Leung Mark D. Marshall	Spectrum assigned. Manuscript in prep.

FORMULA	NAME OF COMPOUND	NAME OF INVESTIGATOR	PRESENT STAGE OF PROGRESS
C ₄ H ₄ F ₂ (HCCH- <i>cis</i> -CHFCHF, H ¹³ CCH- <i>cis</i> -CHFCHF, HC ¹³ CH- <i>cis</i> -CHFCHF, HCCH- <i>cis</i> - ¹³ CHFCHF, HCCH- <i>cis</i> -CHF ¹³ CHF)	acetylene- <i>cis</i> -1,2-difluoro- ethylene	Helen O. Leung Mark D. Marshall	Spectrum assigned. Manuscript in prep.
C ₄ H ₃ ClF ₂ (HCCH-CF ₂ CH ³⁵ Cl)	acetylene-2-chloro- 1,1-difluoroethylene	Helen O. Leung Mark D. Marshall	Spectrum assigned.
C ₂ H ₂ DF ₃ (CHFCHF), DF- <i>cis</i> - ¹³ CHFCHF, DF- <i>cis</i> -CHF ¹³ CHF)	deuterium fluoride- <i>cis</i> -1,2-difluoro- ethylene	Helen O. Leung Mark D. Marshall	Spectrum assigned. (DF- <i>cis</i> -
C ₂ H ₃ ArCl (Ar-CH ₂ CH ³⁵ Cl, Ar-CH ₂ CH ³⁷ Cl)	argon-vinyl chloride	Helen O. Leung Mark D. Marshall	Spectrum assigned.
C ₂ H ₄ Cl ₂ (H ³⁵ Cl-CH ₂ CH ³⁵ Cl, H ³⁵ Cl-CH ₂ CH ³⁷ Cl, H ³⁷ Cl-CH ₂ CH ³⁵ Cl)	hydrogen chloride- vinyl chloride	Helen O. Leung Mark D. Marshall	Spectrum assigned.
C ₄ H ₄ ClF (<i>Z</i>)-CHFCH ³⁵ Cl-HCCH, (<i>Z</i>)-CHFCH ³⁷ Cl-HCCH, (<i>Z</i>)-CHF ¹³ CH ³⁵ Cl-HCCH, (<i>Z</i>)-CHFCH ³⁵ Cl-H ¹³ C ¹³ CH, (<i>Z</i>)-CHFCH ³⁷ Cl-H ¹³ C ¹³ CH, (<i>Z</i>)-CHFCH ³⁵ Cl-H ¹³ CCH, (<i>Z</i>)-CHFCH ³⁵ Cl-HC ¹³ CH, (<i>Z</i>)-CHFCH ³⁷ Cl-H ¹³ CCH)	acetylene-(<i>Z</i>)- 1-chloro-2-fluoro- ethylene	Helen O. Leung Mark D. Marshall	J. Phys. Chem. A 121, 5651 (2017)
C ₂ H ₃ Cl ₂ F (H ³⁵ Cl-(<i>Z</i>)-CHFCH ³⁵ Cl, H ³⁷ Cl-(<i>Z</i>)-CHFCH ³⁵ Cl, H ³⁵ Cl-(<i>Z</i>)-CHFCH ³⁷ Cl)	hydrogen chloride- (<i>Z</i>)-1-chloro-2- fluoroethylene	Helen O. Leung Mark D. Marshall	Spectrum assigned.

FORMULA	NAME OF COMPOUND	NAME OF INVESTIGATOR	PRESENT STAGE OF PROGRESS
C_2H_2ArClF ($Ar-CH_2CF^{35}Cl$, $Ar-CH_2CF^{37}Cl$)	argon-1-chloro- 1-fluoroethylene	Helen O. Leung Mark D. Marshall	Spectrum assigned.
$C_2H_2Cl_2$ ($CH^{35}ClCH^{35}Cl$, $CH^{35}ClCH^{37}Cl$, $CH^{37}ClCH^{37}Cl$, $CH^{35}Cl^{13}CH^{35}Cl$)	<i>cis</i> -1,2-dichloro- ethylene	Helen O. Leung Mark D. Marshall	Spectrum assigned.
$C_2H_2ArCl_2$ ($Ar-CH^{35}ClCH^{35}Cl$, $Ar-CH^{35}ClCH^{37}Cl$)	argon- <i>cis</i> -1,2- dichloroethylene	Helen O. Leung Mark D. Marshall	Spectrum assigned.
C_2H_2BrF ($CH_2C^{79}BrF$, $CH_2C^{81}BrF$)	1-bromo-1-fluoro- ethylene	Helen O. Leung Mark D. Marshall	Spectrum assigned.
$C_3H_3F_3O$ ($CH_2CH(CF_3)O$, $^{13}CH_2CH(CF_3)O$, $CH_2^{13}CH(CF_3)O$, $CH_2CH(^{13}CF_3)O$, $CH_2CH(CF_3)^{18}O$)	2-(trifluoromethyl)- oxirane	Helen O. Leung Mark D. Marshall	Spectrum assigned. Manuscript in prep.
$C_3H_3ArF_3O$ ($Ar-CH_2CH(CF_3)O$, $Ar-^{13}CH_2CH(CF_3)O$, $Ar-CH_2^{13}CH(CF_3)O$, $Ar-CH_2CH(^{13}CF_3)O$)	argon- 2-(trifluoromethyl)- oxirane	Helen O. Leung Mark D. Marshall	Spectrum assigned. Manuscript in prep.
$C_6H_6F_6O_2$ ($CH_2CH(CF_3)O-CH_2CH(CF_3)O$)	2-(trifluoromethyl)- oxirane dimer	Helen O. Leung Mark D. Marshall Nathan Seifert Yunjie Xu Wolfgang Jäger	Spectrum assigned.
$C_3H_4F_2O$ ($CH_2CH(CHF_2)O$, $^{13}CH_2CH(CHF_2)O$, $CH_2^{13}CH(CHF_2)O$, $CH_2CH(^{13}CHF_2)O$, $CH_2CH(CHF_2)^{18}O$)	2-(difluoromethyl)- oxirane	Helen O. Leung Mark D. Marshall	Spectrum assigned. Manuscript in prep.
$C_3H_4ArF_2O$ ($Ar-CH_2CH(CHF_2)O$)	argon- 2-(difluoromethyl)- oxirane	Helen O. Leung Mark D. Marshall	Spectrum assigned. Manuscript in prep.

FORMULA	NAME OF COMPOUND	NAME OF INVESTIGATOR	PRESENT STAGE OF PROGRESS
C ₄ H ₆ O (CH ₂ CH(CHCH ₂)O, ¹³ CH ₂ CH(CHCH ₂)O, CH ₂ ¹³ CH(CHCH ₂)O, CH ₂ CH(¹³ CHCH ₂)O, CH ₂ CH(CH ¹³ CH ₂)O, CH ₂ CH(CHCH ₂) ¹⁸ O)	2-vinyloxirane	Helen O. Leung Mark D. Marshall	Spectrum assigned.
C ₄ H ₆ ArO (Ar-CH ₂ CH(CHCH ₂)O)	argon-2-vinyloxirane	Helen O. Leung Mark D. Marshall	Spectrum assigned.
C ₃ H ₂ ArF ₄ (Ar-CH ₂ CF ₂ CF ₃ , Ar- ¹³ CH ₂ CF ₂ CF ₃ , Ar-CH ₂ ¹³ CF ₂ CF ₃ , Ar-CH ₂ CF ¹³ CF ₃)	argon-2,3,3,3-tetra- fluoropropene	Helen O. Leung Mark D. Marshall	J. Mol. Spectrosc. 337, 80 (2017)
C ₃ H ₃ ClF ₄ (H ³⁵ Cl-CH ₂ CF ₂ CF ₃)	hydrogen chloride- 2,3,3,3-tetrafluoro- propene	Helen O. Leung Mark D. Marshall	Spectrum assigned.
C ₃ H ₂ ClF ₃ (CH ₂ C ³⁵ ClCF ₃ , ¹³ CH ₂ C ³⁵ ClCF ₃ , CH ₂ ¹³ C ³⁵ ClCF ₃ , CH ₂ C ³⁵ Cl ¹³ CF ₃ , CH ₂ C ³⁷ ClCF ₃)	2-chloro-3,3,3- trifluoropropene	Helen O. Leung Mark D. Marshall	Spectrum assigned.
C ₃ H ₂ ArClF ₃ (Ar-CH ₂ C ³⁵ ClCF ₃ , Ar-CH ₂ C ³⁷ ClCF ₃)	argon-2-chloro- 3,3,3-trifluoropropene	Helen O. Leung Mark D. Marshall	Spectrum assigned.
C ₃ H ₂ ClF ₃ ((Z)-CH ³⁵ ClCHCF ₃ , (Z)- ¹³ CH ³⁵ ClCHCF ₃ , (Z)-CH ³⁵ Cl ¹³ CHCF ₃ , (Z)-CH ³⁵ ClCH ¹³ CF ₃ , (Z)-CH ³⁷ ClCHCF ₃)	(Z)-1-chloro- 3,3,3-trifluoropropene	Helen O. Leung Mark D. Marshall	Spectrum assigned.
C ₃ H ₂ ArClF ₃ (Ar-(Z)-CH ³⁵ ClCHCF ₃ , Ar-(Z)-CH ³⁷ ClCHCF ₃)	argon-(Z)-1-chloro- 3,3,3-trifluoropropene	Helen O. Leung Mark D. Marshall	Spectrum assigned.

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C ₃ H ₂ ClF ₃ (<i>E</i>)-CH ³⁵ ClCHCF ₃ , (<i>E</i>)- ¹³ CH ³⁵ ClCHCF ₃ , (<i>E</i>)-CH ³⁵ Cl ¹³ CHCF ₃ , (<i>E</i>)-CH ³⁵ ClCH ¹³ CF ₃ , (<i>E</i>)-CH ³⁷ ClCHCF ₃)	(<i>E</i>)-1-chloro- 3,3,3-trifluoropropene	Helen O. Leung Mark D. Marshall	Spectrum assigned.
C ₃ H ₂ ArClF ₃ (Ar-(<i>E</i>)-CH ³⁵ ClCHCF ₃ , Ar-(<i>E</i>)-CH ³⁷ ClCHCF ₃)	argon-(<i>E</i>)-1-chloro- 3,3,3-trifluoropropene	Helen O. Leung Mark D. Marshall	Spectrum assigned.
C ₃ H ₂ F ₄ (<i>E</i>)-CHFCHCF ₃ , (<i>E</i>)- ¹³ CHFCHCF ₃ , (<i>E</i>)-CHF ¹³ CHCF ₃ , (<i>E</i>)-CHFCH ¹³ CF ₃)	(<i>E</i>)-1,3,3,3-tetra- fluoropropene	Helen O. Leung Mark D. Marshall	Spectrum assigned.
C ₃ H ₂ ArF ₄ (Ar-(<i>E</i>)-CHFCHCF ₃)	argon-(<i>E</i>)-1,3,3,3- tetrafluoropropene	Helen O. Leung Mark D. Marshall	Spectrum assigned.

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<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C ₅ H ₃ F ₇ O ₄ (HCOOH- CF ₃ CF ₂ CF ₂ COOH)	Formic acid- Heptafluorobutyric acid	Javix Thomas ⁷ , Michael Carrillo, Agapito Serrato III, Wei Lin, Wolfgang Jaeger ⁷ , Yunjie Xu ⁷	JMS, 335, 88-92, 2017
C ₄ H ₅ F ₃ O ₂ (CF ₃ (CH ₂) ₂ COOH)	4,4,4-tifluorobutyric acid	Yoon Jeong Choi ¹ , Alex Trevino L. Stephens ¹ , Stephen A. Cooke ⁴ , Stewart E. Novick ¹ , Wei Lin	JMS, 344, 65-70.2018
C ₅ H ₇ F ₃ O ₄ (HCOOH- CF ₃ (CH ₂) ₂ COOH)	Formic acid-4,4,4- tifluorobutyric acid	Yoon Jeong Choi ¹ , Alex Trevino L. Stephens ¹ , Stephen A. Cooke ⁴ , Stewart E. Novick ¹ , Wei Lin	JMS, 344, 65-70.2018
C ₅ H ₄ F ₆ O ₄ (HCOOH- (CF ₃) ₂ CHCOOH)	Formic acid-3,3,3- trifluoro-2- (trifluoromethyl)prop anoic acid	Javix Thomas ⁷ , Michael Carrillo, Agapito Serrato III, Wolfgang Jaeger ⁷ , Yunjie Xu ⁷ , Wei Lin	To be submitted
C ₃ H ₂ F ₄ O ₂ (CF ₃ CFHCOOH)	2,3,3,3- tetrafluoropropionic acid	Dan A. Obenchain ¹ , Jianming Wu ⁶ , Xin Xu ⁶ , Agapito Serrato III, Will Orellana ¹ , Stephen A. Cooke ⁴ , Stewart E. Novick ¹ , Wei Lin	To be submitted
C ₃ H ₄ F ₄ O ₃ (H ₂ O- CF ₃ CFHCOOH)	Water-2,3,3,3- tetrafluoropropionic acid	Dan A. Obenchain ¹ , Jianming Wu ⁶ , Xin Xu ⁶ , Agapito Serrato III, Will Orellana ¹ , Stephen A. Cooke ⁴ , Stewart E. Novick ¹ , Wei Lin	To be submitted

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
$C_4H_7F_3O_3$ (H_2O - $CF_3(CH_2)_2COOH$)	Water-4,4,4-tifluorobutyric acid	Yoon Jeong Choi ¹ , Alex Trevino L. Stephens ¹ , Stephen A. Cooke ⁴ , Stewart E. Novick ¹ , Wei Lin	Spectrum assigned
C_5H_8Ne ($Ne-CH_2=C-CCH_2CH_2CH_2$)	Neon-Methylene Cyclobutane	Andrea Minei ² , Wei Lin, Lu Kang ³ , Wallace C. Pringle ¹ , Stewart E. Novick ¹	Manuscript to be submitted
$C_{10}H_8O_4$ ($HCOOH-C_6H_5C\equiv CCOOH$)	Formic acid-Phenylpropionic acid	Junwu Zhou ⁹ , Aaron Pejlovas ⁹ , Alexis Delgado, Stephen G. Kukolich ⁹ , Wei Lin	Spectrum assigned
$C_4H_3F_5O_4$ ($HCOOH-CF_3CF_2COOH$)	Formic acid-Pentafluoropropionic acid	Dan A. Obenchain ¹ , Stephen A. Cooke ⁴ , Stewart E. Novick ¹ , Wei Lin	Spectrum assigned
$C_3H_{10}O$ ($H_2O-CH_3CH_2CH_3$)	Water propane (C^{13} isotopomers)	Dan A. Obenchain ¹ , Wei Lin, Karen Peterson ⁸ , Richard J. Saykally ⁵ , Stewart E. Novick ¹	Spectrum assigned

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<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
CH ₉ NO ₄ (CH ₃ NO-(H ₂ O) ₃)	Formamide-water ₃ complexes	Pablo Pinacho Susana Blanco Juan C. López	<i>J. Phys. Chem Lett.</i> 8, 6060-6066, 2017
C _n H _{5n} N _n O _{2n} ((CH ₃ NO) _n -(H ₂ O) _n)	formamide-water complexes	Susana Blanco Juan C. López Pablo Pinacho Brooks Pate's Group ¹	Spectra assigned
C ₈ H ₈ O ₃	o-anisic acid	Alberto Macario Susana Blanco Juan C. López	Manuscript in prep.
C ₈ H _{2n+8} O _{n+3} (C ₈ H ₈ O ₃ -(H ₂ O) _n)	o-anisic acid-water complexes	Alberto Macario Pablo Pinacho Susana Blanco Juan C. López	Manuscript in prep
C ₉ H ₁₀ O ₅ (C ₈ H ₈ O ₃ -(CH ₂ O ₂))	o-anisic acid – formic acid complex	Alberto Macario Susana Blanco Juan C. Lopez Yunjie Xu's Group ²	Spectrum observed Work in progress
C ₃ H _{2n+5} NO _{n+1} (C ₃ H ₅ NO-(H ₂ O) _n)	2-azetidinone-water complexes	Pablo Pinacho Susana Blanco Juan C. López	Spectrum observed Work in progress
C ₇ H _{2n+7} NO _{n+1} (C ₇ H ₇ NO-(H ₂ O) _n)	Formanilide water complexes	Pablo Pinacho Susana Blanco Juan C. López	Manuscript in prep

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
$C_2H_{2n+5}NO_{n+2}$ $(C_2H_5NO_2 \cdot (H_2O)_n)$	Methyl carbamate (Urethylane) water complexes	Susana Blanco Pablo Pinacho Juan C. López Z. Kisiel ³	Manuscript in prep
$C_3H_7NO_2$ $C_3H_{2n+7}NO_{n+2}$ $(C_3H_7NO_2 \cdot (H_2O)_n)$	Ethyl carbamate (Urethane) and water complexes	Pablo Pinacho Juan C. López Susana Blanco Z. Kisiel ³	Manuscript in prep
$C_5H_{11}NO_2$ $C_5H_{2n+11}NO_{n+2}$ $(C_5H_{11}NO_2 \cdot (H_2O)_n)$	Butyl carbamate and water complexes	Pablo Pinacho Susana Blanco Juan C. López Z. Kisiel ³	Manuscript in prep
$C_7H_{2n+7}NO_{n+2}$ $(C_7H_7NO_2 \cdot (H_2O)_n)$	Phenyl carbamate water complexes	Pablo Pinacho Susana Blanco Juan C. López	Spectrum observed Work in progress
$C_8H_{2n+9}NO_{n+2}$ $(C_8H_9NO_2 \cdot (H_2O)_n)$	Benzyl carbamate water complexes	Pablo Pinacho Juan C. López Susana Blanco	Spectrum observed Work in progress
$C_{11}H_9N$ $C_{11}H_{2n+9}NO_n$ $(C_{11}H_9N \cdot (H_2O)_n)$	2-Phenylpyridine and water complexes	Alberto Macario Juan C. López Susana Blanco	Spectra assigned Work in progress
$C_{10}H_{10}O_3$ $C_{10}H_{2n+10}O_{n+3}$ $(C_{10}H_{10}O_3 \cdot (H_2O)_n)$	3-Methoxycinnamic acid and water complexes	Alberto Macario Juan C. López Susana Blanco	Spectra observed Work in progress
$C_8H_8O_3$	3-Methoxybenzoic acid (<i>m</i> -Anisic acid)	Alberto Macario Juan C. López Susana Blanco Yunjie Xu's Group ²	Spectra assigned Work in progress

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
$C_9H_{10}O_5$ ($C_8H_8O_3-(CH_2O_2)$)	3-Methoxybenzoic acid (<i>m</i> -Anisic acid) formic acid complexes	Alberto Macario Juan C. López Susana Blanco Yunjie Xu's Group ²	Spectra assigned Work in progress
$C_{15}H_{10}O_2$ $C_{15}H_{2n+10}O_{n+2}$ ($C_{15}H_{10}O_2-(H_2O)_n$)	Flavone and water complexes	Susana Blanco Juan C. López	Spectrum assigned Work in progress
$C_{15}H_{12}O_2$ $C_{15}H_{2n+12}O_{n+2}$ ($C_{15}H_{12}O_2-(H_2O)_n$)	Flavanone and water complexes	Susana Blanco Juan C. López	Spectra assigned Work in progress
$C_{10}H_{2n+8}N_2O_n$ ($C_{10}H_8N_2-(H_2O)_n$)	2,2'-Bipyridine water complexes	Susana Blanco Juan C. López	Spectrum observed Work in progress
$C_9H_{12}O_2$	4-Ethylguaiacol	Susana Blanco Juan C. López	Spectrum assigned Work in progress
$C_8H_8O_3$ $C_8H_{2n+8}O_{n+3}$ ($C_8H_8O_3-(H_2O)_n$)	Mandelic acid and water complexes	Pablo Pinacho Susana Blanco Juan C. López	Spectrum observed
$C_8H_{10}O_2$ $C_8H_{2n+10}O_{n+2}$ ($C_8H_{10}O_2-(H_2O)_n$)	Dimethoxybenzene and water complexes	Assimo Maris ⁴ Susana Blanco Juan C. López	Spectrum observed
$C_{10}H_{16}O$ $C_{10}H_{2n+16}O_{n+1}$ ($C_{10}H_{16}O-(H_2O)_n$)	Verbenol and water complexes	Assimo Maris ⁴ Susana Blanco Juan C. López	Spectrum assigned
C_6H_7NO ($C_5H_5N-CH_2O$)	Pyridine-formaldehyde complex	Juan C. López Susana Blanco	Spectrum assigned
$C_8H_{11}NO$ ($C_5H_5N-C_3H_6O$)	Pyridine-acetone complex	Juan C. López Susana Blanco	Spectrum assigned

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
$C_6H_8N_2O$ ($C_5H_5N-CH_3NO$)	Pyridine-formamide complex	Susana Blanco Cristina Puzzarini ⁵ Juan C. López Lorenzo Spada ⁵	Spectrum assigned
$C_7H_{10}N_2O$ ($C_5H_5N-C_2H_5NO$)	Pyridine-N-methylformamide complex	Lorenzo Spada ⁵ Juan C. López Cristina Puzzarini ⁵ Susana Blanco	Spectrum assigned
$C_5H_{12}O$ $C_5H_{2n+12}O_{n+1}$ ($C_5H_{12}O-(H_2O)_n$) $C_5H_{12}ArO$ ($C_5H_{12}O-Ar$)	3-methyl-butanol and water complex and Ar complex	Juan C. López Susana Blanco Alberto Lesarri	Spectra assigned Work in progress

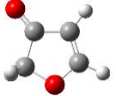
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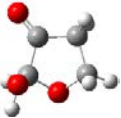
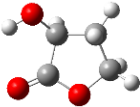
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<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
CH ₃ N (CH ₂ NH)	Methyleneimine	Scherschligt ¹ , Douglass ¹ , Plusquellic ² , Lovas ¹	spectrum measured near 550 GHz
CH ₅ N (CH ₃ NH ₂)	Methylamine	Scherschligt ¹ , Douglass ¹ , Plusquellic ² , Lovas ¹	spectrum measured 530 to 600 GHz
CH ₅ NO ₂ (HCOOH-NH ₃)	Formic acid- ammonia	Grabow ³ , Lovas ¹ , Fraser ¹	Spectrum assigned
C ₂ H ₅ NO (CH ₃ OH-HCN)	Methanol-hydrogen cyanide	Lovas ¹ , Sobhanadri ⁴	Spectrum assigned
C ₃ H ₂ O (HCCCHO)	Propynal	Plusquellic ² , Lovas ¹ , Scherschligt ¹ , Douglass ¹ ,	mm spectrum assigned, manuscript in prep.
C ₃ H ₃ F ₅ O (CF ₃ CH ₂ OCHF ₂)	2,2,2-Trifluoroethyl difluoromethyl ether [RE245]	Lovas ¹ , Suenram ⁵ , Hight Walker ¹ , Dixon ^{1,6}	Lowest energy conformer, <i>anti-anti</i> , assigned. Dipole moment & structure
C ₃ H ₄ O (CH ₂ =CHCHO)	Propenal	Plusquellic ² , Lovas ¹ , Scherschligt ¹ , Douglass ¹ ,	mm spectrum assigned, manuscript in prep.
C ₃ H ₆ O ₆ (HCOOH) ₃	Formic acid trimer	Douglass ¹ , Pate ⁷ , Suenram ^{1,5} , Crum ⁷	Manuscript in preparation
C ₄ H ₄ O ₂ (CH ₂ C(O)CH=CHO)	3(2H)-furanone 	Lovas ¹ , Plusquellic ² , Suenram ^{1,5} , Pate ⁷ , Neill ⁸ , Muckle ⁸	Cavity & broadband spectrum assigned, manuscript in prep.

Lab 32

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C ₄ H ₆ O ₃ (OCHOHC(O)CH ₂ CH ₂)	Dihydro-2-hydroxy-3(2H)-furanone 	Lovas ¹ , Plusquellic ² , Suenram ^{1,5} , Pate ⁷ , Neill ⁸ , Muckle ⁸	Cavity & broadband spectrum assigned, manuscript in prep.
C ₄ H ₆ O ₃ (OC(O)CHOHCH ₂ CH ₂)	Dihydro-3-hydroxy-2(3H)-furanone 	Lovas ¹ , Plusquellic ² , Suenram ^{1,5} , Pate ⁷ , Neill ⁸ , Muckle ⁸	Cavity & broadband spectrum assigned, manuscript in prep.
C ₄ H ₇ NO ₂ ((CH ₃ CO) ₂ NH)	Diacetamide	Suenram ^{1,5} , Plusquellic ² , Kawashima ⁹	Assigned <i>cis-trans</i> -conformer, $V_3 = 127 \text{ cm}^{-1}$
C ₅ H ₁₀ N ₂ O ₂	N-acetyl-alanine amide (Ac-ALA-NH ₂)	Douglass ¹ , Ahmed ¹ , Plusquellic ²	Assigned 1 conformer, fit A state
C ₅ H ₁₃ O ₂ N	<i>N</i> -methyl diethanol amine	Xu ¹⁰ , Liu ¹⁰ , Suenram ^{1,5} , Lovas ¹ , Fraser ¹ , Jensen ¹¹ , Samuels ¹¹	2 Conformers assigned, Manuscript in Preparation
C ₆ H ₁₂ O ((CH ₃) ₃ CC(O)CH ₃)	Pinacolone	Suenram ^{1,5} , Plusquellic ² , Pate ⁷ , Rees ⁷ , Pajski ⁷ , Douglass ¹ , Brown ⁷	<i>A</i> & <i>E</i> states assigned for N, ¹³ C, & ¹⁸ O isotopomers, Tunneling state assigned, UVa CP
C ₆ H ₁₅ O ₂ N	<i>N</i> -ethyl diethanol amine	Xu ¹⁰ , Liu, ¹⁰ Lovas ¹ , Suenram ⁵ , Fraser ¹ , Jensen ¹¹ , Samuels ¹¹	3 Conformers assigned MS in preparation

Lab 32

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C ₈ H ₈ O ₂ (CH ₃ CHCHC(OH)C(O)CHCH)	5-Methyltropolone 	Ilyushin ¹³ , Johnson ¹⁵ , Hohl ¹⁵ , Cloesasner ¹⁵ , Lovas ¹ , Lavrich ¹⁵	J. Mol. Spec. 343 , 76 (2018).
C ₁₀ H ₇ Cl	1-Chloronaphthalene	Plusquellic ²	³⁵ Cl & ³⁷ Cl assigned in conjunction with UV spectrum
C ₁₀ H ₇ F	1-Fluoronaphthalene	Plusquellic ² , Korter ¹⁶ , Borst ¹	electronic and FTMW spectrum
C ₁₀ H ₈ O	2-Naphthol	Plusquellic ² , Davis ¹⁷	<i>Cis</i> conformer assigned, global fit s
C ₁₁ H ₁₀	1-Methylnaphthalene	Plusquellic ² , Lugez ¹⁸ , Hight Walker ¹ , Suenram ⁵	FTMW spectrum fit, global fit of gnd and excited state
C ₁₁ H ₁₀	2-Methylnaphthalene	Plusquellic ² , Lugez ¹⁸ , Hight Walker ¹ , Suenram ⁵	FTMW A & E state fit, of the gnd and elec. excited state
C ₁₂ H ₁₀ O (C ₆ H ₅ -O-C ₆ H ₅)	Biphenyl ether	Onda ¹⁹ , Schnell ²⁰ Plusquellic ² , Lovas ¹	Spectrum assigned
C ₁₂ H ₁₂ O	Methyl-1- Naphthalene Methanol	Plusquellic ² , Lavrich ¹⁵	Normal and D species assigned
C ₁₂ H ₁₂ O	Methyl-2- naphthalene Methanol	Plusquellic ² , Lavrich ⁵	Normal and D species assigned

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C ₁₂ H ₁₂ O	Methyl-2-naphthalene Methanol	Plusquellic ² , Lavrich ⁵	Normal and D species assigned
C ₁₂ H ₁₅ NO ₃	N-acetyl Phenylalanine methyl ester	Douglass ¹ , Plusquelli ² , Pate ⁷ , Pratt ²¹	AA, AE, and EA states fit
C ₁₃ H ₁₂ O	2-Benzylphenol	Plusquellic ² , Zwi ²² , Douglass ¹ , Müller ²² , Pillsbury ²²	One conformer assigned
C ₂₀ H ₁₄ O ₂	1,1'-bi-2,2'-hydroxynaphthalene	Davis ¹⁷ , Plusquellic ² , Suenram ⁵	Normal, HD and D ₂ assigned
H ₄ OS H ₂ O-H ₂ S	Hydrogen sulfide - water dimer	Lovas ¹ , Suenram ⁵	Nine isotopic forms assigned
H ₄ S ₂ (H ₂ S-H ₂ S)	Hydrogen sulfide dimer	Lovas ¹ , Mandal ²³ , Arunan ²³ , Das ²³ , Medcraft ²⁴	Nine isotopic forms assigned, MS in prep

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FORMULA	NAME OF COMPOUND	INVESTIGATORS	PRESENT STAGE OF PROGRESS
H ¹⁵ N	Imidogen	L. Bizzocchi, M. Melosso ¹ , F. Tamassia ² , et al.	manuscript in preparation
CHO ₂ ⁺ (HOCO ⁺) (DOCO ⁺)	protonated carbon dioxide	L. Bizzocchi, et al.	<i>A&A</i> , 602 (2017) A34
CH ₂ S ₂ (HCSSH)	dithioformic acid	D. Prudenzano, et al.	<i>A&A</i> , in press (2018)
C ₃ HN	Cyanoacetylene	L. Bizzocchi, M. Melosso ¹ , L. Dore ¹ , F. Tamassia ² , H. Spahn ³ , et al.	<i>ApJS</i> , 233 , (2017) 11; submm-wave and IR ongoing
C ₃ DN	<i>d</i> -cyanoacetylene	L. Bizzocchi, M. Melosso ¹ , F. Tamassia ³ , A. Pietropolli-Charnet ⁴ , et al.	IR measurements completed; mm-wave and submm-wave ongoing
CHOS ⁺ (OCSH ⁺) (HOCS ⁺)	protonated carbonyl sulfide	V. Lattanzi, S. Spezzano, M. McCarthy ⁵ , et al.	mm-wave measurements completed
CD ₂ S	thioformaldehyde- <i>d</i> ₂	V. Lattanzi et al.	mm-wave and submm-wave measurements completed
CHS ₂ ⁺ (SCSH ⁺)	protonated carbon disulfide	V. Lattanzi, M.E. Palumbo ⁶ , M. McCarthy ⁵ , et al.	measurements ongoing
C ₂ HO (HCCO) (DCCO)	ketenyl <i>d</i> -ketenyl	J. Chantzios, S. Spezzano, et al.	measurements ongoing
C ₂ H ₄ N ₂ (CH ₃ NHCN)	<i>N</i> -cyano-methylamine	D. Prudenzano, J.-C. Guillemin ⁷ , M. Carvajal-Zaera ⁸ , et al.	measurements ongoing
CN ⁺	cyanogen cation	V. Lattanzi, M. McCarthy ⁵ , et al.	measurements ongoing

FORMULA	NAME OF COMPOUND	INVESTIGATORS	PRESENT STAGE OF PROGRESS
DHN DH ¹⁵ N	amidogen	L. Bizzocchi, D. Prudenzano, M. Melosso ² , L. Dore ² , et al.	measurements ongoing

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Formula	Name of Compound	Investigator	Present Stage of Progress
C ₃ HN (HC ₃ N)	cynoacetylene	L. Bizzocchi, ¹ M. Melosso, ² L. Dore, ² C. Degli Esposti, ² F. Tamassia, ³ H. Spahn, <i>et al.</i>	<i>ApJSS</i> 233 (2017) 11; sub- mmW and IR; ongoing
CH ⁺	methylidyne	J. Doménech, ⁴ O. Asvany, <i>et al.</i>	rotational and rovibrational transitions; ms submitted
HSi ⁺ (SiH ⁺)	silylidyne	J. Doménech, ⁴ O. Asvany, <i>et al.</i>	<i>Astrophys. J.</i> 849 (2017) 60
C ₂ H ₆ O (CH ₃) ₂ O	dimethyl ether	C. P. Endres, B. Drouin, ⁵ <i>et al.</i>	$\nu_1 + \nu_2 = 1$ ms. near subm.; higher- ν ongoing
CO	carbon monoxide	R. Gendriesch, F. Lewen, G. Klapper, H. S. P. Müller	full ms. in prep.
C ₂ H ₅ NO (CH ₃ C(O)NH ₂)	acetamide	V. V. Ilyushin ⁶ <i>et al.</i>	≤ 660 GHz; analysis ongoing
C ₄ H ₇ N (<i>n</i> -C ₃ H ₇ CN)	<i>n</i> -propyl cyanide	D. Liu, ⁷ A. Walters, ⁷ N. Wehres, <i>et al.</i>	several vib. states each of <i>gauche</i> and <i>anti</i> conformers; 35–505 GHz; analysis on- going
C ₂ H ₄ S	vinyl mercaptan	M.-A. Martin-Drumel <i>et al.</i>	≤ 400 GHz; <i>syn</i> and <i>anti</i> ; meas. nearing completion
CH ₂ S (H ₂ CS)	thioformaldehyde	H. S. P. Müller, A. Maeda, ⁸ <i>et al.</i>	≤ 1.4 THz; various vibrational states and isotopic species; measurements completed
O ₂ S	sulfur dioxide	H. S. P. Müller	$\nu_2 = 2, \nu_1 = 1, \nu_3 = 1$; ≤ 1.5 THz; ongoing
BrF, FI	bromine and iodine mono-fluorides	H. S. P. Müller, S. Thorwirth, <i>et al.</i>	$J'' = 0, 1, \nu \leq 30$; preliminary analysis completed
C ₂ H ₃ N (CH ₃ CN)	methyl cyanide	H. S. P. Müller, B. J. Drouin, ⁵ J. C. Pearson, ⁵ <i>et al.</i>	various vibrational states and isotopic species; ongoing; inclusion of $\nu_4 = 1$ advanced.

Formula	Name of Compound	Investigator	Present Stage of Progress
O ₂ Ti	titanium dioxide	H. S. P. Müller, S. Brünken, <i>et al.</i>	full manuscript on 7 isotopic species in preparation
H ₂ N	amidogen	H. S. P. Müller, B. J. Drouin ⁵	around 2.6 THz at JPL
C ₅ H ₉ N	2-methylbutyronitrile	H. S. P. Müller, N. Wehres, O. Zingsheim, J.-U. Grabow, ⁵ <i>et al.</i>	<i>J. Phys. Chem. A</i> 121 (2017) 7121 (on lowest conformer; ms on two higher lying conformers in preparation
C ₃ H ₆ O (CH ₃ C(O)CH ₃)	acetone	M. Ordu <i>et al.</i>	with one ¹³ C; ≤ 910 GHz; measurements completed for ¹³ C ₂ species, analysis of gs. nearing completion, excited states started; measurements of ¹³ C ₁ about to start
CHHeO ⁺ (He···HCO ⁺)	HCO ⁺ vdW complex with helium	T. Salomon, O. Asvany, <i>et al.</i>	mmW; measurements completed
C ₅ HN (HC ₅ N)	cyanodiacetylene	H. Spahn, J.-U. Grabow, ⁹ <i>et al.</i>	FTMW, meas. completed
CN ₂ O (N ₂ ···CO)	nitrogen carbon monoxide vdW complex	L. A. Surin, A. van der Avoird, ¹⁰	<i>J. Chem. Phys.</i> 148 (2018) 044313; further assign. and HFS analysis in progress
H ₃ HeN (He···NH ₃)	ammonia vdW compl. with helium	L. A. Surin, S. Schlemmer, M. Hermanns	MW; search for inv. and rot.-inv. trans. of He··· <i>o</i> NH ₃ , He··· <i>p</i> NH ₃
H ₅ N (H ₂ ···NH ₃)	ammonia vdW compl. with hydrogen	I. Tarabukin, ¹¹ L. A. Surin, M. Hermanns, S. Schlemmer	MW and mmW; <i>ApJ</i> 838 (2017) 27; search for rotational transitions of <i>p</i> H ₂ ··· <i>o</i> NH ₃ , <i>p</i> H ₂ ··· <i>p</i> NH ₃ and symmetrically deuterated isotopologs
H ₃ NNe (Ne···NH ₃)	ammonia vdW compl. with neon	I. Tarabukin, ¹¹ L. A. Surin, M. Hermanns, S. Schlemmer	MW; search for rot. trans. of Ne··· <i>p</i> NH ₃
C ₅ H ₉ N	3-methylbutyronitrile	N. Wehres, M. Hermanns, K. Borisov, O. H. Wilkins, J.-U. Grabow, <i>et al.</i>	≤ 405 GHz; both conformers identified, ms nearing completion
CH ₃ He ⁺ (He···CH ₃ ⁺)	CH ₃ ⁺ vdW complex with helium	M. Töpfer, O. Asvany, <i>et al.</i>	IR and IR/mmW DR; measurements completed
CH ₄ O	CH ₃ OD	L.-H. Xu, ¹² R. M. Lees, ¹² <i>et al.</i>	≤ 1.34 THz, <i>v_t</i> ≤ 2; ongoing
CH ₄ O	¹³ CH ₃ OD	L.-H. Xu, ¹² R. M. Lees, ¹² <i>et al.</i>	≤ 510 GHz, <i>v_t</i> ≤ 2; ongoing
CH ₄ S	CH ₃ SD	E. Zakharenko <i>et al.</i>	≤ 510 GHz, ongoing

Formula	Name of Compound	Investigator	Present Stage of Progress
CH ₄ S	CH ₃ SH, CH ₃ ³⁴ SH	V. V. Ilyushin, ⁶ E. Zakharenko, L.-H. Xu, ¹² R. M. Lees, ¹² et al.	≤ 1.5 THz, ongoing
C ₃ H ₈ O ₂	1,2-propanediol	E. Zakharenko <i>et al.</i>	further studies intended: 8th conformer, vib. exc. states
C ₃ H ₆ O	propanal	O. Zingsheim et al.	<i>J. Mol. Spectrosc.</i> 342 (2017) 132; ongoing
ANALYSIS	Cologne Database for Molecular Spectroscopy	http://www.astro.uni-koeln.de/cdms/	

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<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C_2H_7N (CH_3NHCH_3)	<i>N,N</i> -Dimethyl amine	L. Nguyen, ¹ C. Gutlé ¹ W. Stahl ²	Manuscript in Preparation
$C_3H_3D_3O_2$ (CD_3COOCH_3)	Methyl acetate-D ₃	L. Nguyen, ¹ I. Kleiner ¹ L.W. Sutikdja ^{2,*}	Experiments Completed, Assignments Completed
$C_3H_3D_3O_2$ (CD_3COOCH_3)	Methyl-D ₃ acetate	L. Nguyen, ¹ I. Kleiner ¹ L.W. Sutikdja ^{2,*}	Experiments in Progress
C_3H_9N ($C_2H_5NHCH_3$)	Ethyl methyl amine	L. Nguyen ¹	Assignments Completed, Fits in Progress
n-C ₄ H ₅ NS n = 2,4,5	n-Methylthiazol	L. Nguyen, ¹ T. Nguyen ¹ I. Kleiner ¹	Fits in Progress
C_4H_7NO ($CH_3(CONH)C_2H_5$)	N-Vinylacetamide	L. Nguyen, ¹ I. Kleiner ¹ R. Kannengießer ^{2,*}	A Species Assignments Completed, E Species in Progress
$C_4H_8O_2$ ($CH_3COOC_2H_5$)	Ethyl acetate	L. Nguyen ¹	<i>gauche</i> Conformer: Assignments in Progress
C_4H_8OS ($CH_3(C=O)SC_2H_5$)	Ethyl thioacetate	L. Nguyen, ¹ W. Stahl ² L. Tulimat ^{2,*}	Assignments in Progress
$C_4H_{11}N$ ((CH_3) ₃ NH ₂)	<i>tert</i> -Butyl amine	L. Nguyen ¹	Assignments Completed, Fits in Progress
C_3H_7NS	4,5-Dimethylthiazole	L. Nguyen, ¹ W. Stahl ² V. Van ^{2,*}	Assignments Completed, Manuscript in Preparation
C_3H_7NS	2,4-Dimethylthiazole	L. Nguyen, ¹ W. Stahl ² V. Van ^{2,*}	Assignments of one Rotor Completed, 2 nd rotor in

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>Progress PRESENT STAGE OF PROGRESS</u>
C_5H_8O ($CH_3COCH=CHCH_3$)	3-Penten-2-one	M. Andresen ^{1,2}	Experiments in Progress
C_5H_8O ($CH_3COC(CH_3)=CH_2$)	3-Methyl-3-Buten-2-one	M. Andresen ^{1,2}	Experiments in Progress
C_5H_8O ($CH_3COOCH_2CH=CH_2$)	Allyl acetate	L. Nguyen ¹	Higher Energy Conformers: Assignments in Progress
$C_5H_8O_2$	Coffee furanone	L. Nguyen, ¹ W. Stahl, ² V. Van ^{2,*}	Manuscript in Preparation
$C_5H_{10}O$ ($CH_3COC_3H_7$)	2-Pentanone	M. Andresen ^{1,2}	Under Review
$C_5H_{10}O$ ($CH_3COCH(CH_3)_2$)	3-Methyl-2-butanone	M. Andresen ^{1,2}	Experiments in Progress
$C_5H_{10}O_2$ ($C_3H_7COOCH_3$)	<i>n</i> -Methyl butyrate	L. Nguyen, ¹ I. Kleiner ¹ T.S. Zwier ³	<i>J. Mol. Spectrosc.</i> 337 (2017) 51.
$C_5H_{11}NO$ ($H(CONH)C_4H_9$)	<i>tert</i> -Butylformamide	L. Nguyen, ¹ R. Kannengießer ^{2,*}	Manuscript in Preparation
$C_5H_{13}N$ ($((CH_3)_3NHCH_3)$)	<i>N</i> -methyl- <i>tert</i> -butyl amine	L. Nguyen ¹	Assignments Completed, Fits in Progress
$C_6H_6O_2$	5-Methyl-2-furaldehyde	L. Nguyen, ¹ H. Mouhib ⁴ V. Van ^{2,*}	Manuscript in Preparation
$C_6H_{12}O$ ($CH_3COC(CH_3)_3$)	Methyl <i>tert</i> -butyl ketone (pinacolone)	L. Nguyen, ¹ W. Stahl ² J. T. Hougen ⁵	Assignments Completed, Fits in Progress Group Theory in Progress
$C_6H_{12}O$ ($CH_3COC_4H_9$)	2-Hexanone	M. Andresen ^{1,2}	Assignments Completed, Fits in Progress
$C_6H_{12}O_2$ ($CH_3(CH_2)_2COOC_2H_5$)	Ethyl butyrate	L. Nguyen, ¹ L.W. Sutikdja ^{2,*}	Manuscript in Preparation
$C_6H_{12}O_2$ ($C_4H_9COOCH_3$)	<i>n</i> -Methyl pentanoate	M. Andresen ^{1,2}	Manuscript in Preparation
$C_6H_{17}NO$ ($((C_2H_5)_3N \cdot H_2O)$)	Triethyl amine - water	L. Nguyen, ¹ R. Kannengießer ^{2,*}	Assignments in Progress

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
$C_7H_{14}O$ ($CH_3COC_5H_{11}$)	2-Heptanone	M. Andresen ^{1,2}	Assignments Completed, Fits in Progress
$C_7H_{14}O_2$ ($C_5H_{11}COOCH_3$)	<i>n</i> -Methyl hexanoate	L. Nguyen ¹	Manuscript in Preparation
$C_7H_{10}O_4$	Dimethyl-cyclopropane- 1,1-dicarboxylate	L. Nguyen, ¹ W. Stahl ² V. Van, ^{2,*} P. Groner ⁶	Manuscript in Preparation
$C_7H_{11}N$	1,2,5-Trimethylpyrrole	L. Nguyen, ¹ W. Stahl, ² V. Van ^{2,*}	Manuscript in Preparation
C_8H_9F ($F(C_6H_3)(CH_3)_2$)	<i>n,m</i> -Dimethylfluorobenzene <i>n,m</i> = 2,3; 2,4; 2,5; 2,6; 3,4; 3,5	L. Nguyen ¹	Assignments Completed, Fits in Progress
$C_8H_{12}S$	Tetramethylthiophene	L. Nguyen, ¹ W. Stahl, ² V. Van ^{2,*}	Assignments Completed, Fits in Progress
$C_8H_{16}O$ ($CH_3COC_6H_{13}$)	2-Octanone	M. Andresen ^{1,2}	Assignments Completed, Fits in Progress
$C_9H_6O_2$	Coumarin	L. Nguyen, ¹ J.-U. Grabow ⁷	Manuscript in Preparation

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<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C ₄ H ₉ I [CH ₂ ICH ₂ CH ₂ CH ₃]	1-iodobutane	E. A. Arsenault, D. A. Obenchain, T. A. Blake, ^d S. A. Cooke, ^p S. E. Novick	J. Mol. Spectrosc. 335 , 17-22 (2017)
AuClH ₂ [H ₂ AuCl]	hydrogen gold chloride	D. A. Obenchain, G. S. Grubbs II, H. M. Pickett, S. E. Novick	J. Chem. Phys. 146 , 204302 (2017)
H ₂ I ₂ Si [SiH ₂ I ₂]	diiodosilane	E. A. Arsenault, D. A. Obenchain, W. Orellana, S. E. Novick	J. Mol. Spectrosc. 338 , 72-76 (2017)
C ₄ HNO ₂ [CO ₂ HCCCN]	carbon dioxide cyanoacetylene	L. Kang, ⁱ P. Davis, ^{aa} I. Dorell, ^{aa} K. Li, ^{ab} O. Oncer, ^{ab} L. Wang, ⁱ S. E. Novick, S. G. Kukolich, ^{ab}	J. Mol. Spectrosc. 342 , 62-72 (2017)
C ₄ H ₅ F ₃ O ₂ F ₃ CCH ₂ CH ₂ COOH	4,4,4-trifluorobutyric acid	Y. J. Choi, A. Trevino, ^k S. L. Stephens, S. A. Cooke, ^p S. E. Novick, W. Lin ^k	J. Mol. Spectrosc. 344 , 65-70 (2018)
C ₅ H ₇ O ₄ [C ₄ H ₅ F ₃ O ₂ HCOOH]	4,4,4-trifluorobutyric acid - formic acid	Y. J. Choi, A. Trevino, ^k S. L. Stephens, S. A. Cooke, ^p S. E. Novick, W. Lin ^k	J. Mol. Spectrosc. 344 , 65-70 (2018)
C ₆ H ₁₃ I	1-iodohexane	S. L. Stephens, J. A. Signore, S. A. Cooke, ^p S. E. Novick	work in progress
C ₅ H ₁₁ I	1-iodopentane	S. L. Stephens, J. A. Signore, S. E. Novick, S. A. Cooke ^p	work in progress
C ₆ H ₁₂	2-methyl-1-hexen-3-yne	S. L. Stephens, Z. Khanna, R. K. Bohn, S. E. Novick, S. A. Cooke ^p	work in progress
C ₆ H ₈ O	3-hexyne-2-one	S. L. Stephens, Z. Khanna, R. K. Bohn, S. E. Novick, S. A. Cooke ^p	work in progress
C ₂ H ₃ F ₅ S [H ₂ C=CH-SF ₅]	vinylsulfur pentafluoride	W. Orellana, S. L. Stephens, W. C. Pringle, S. E. Novick, P. Groner, ^{ae} S. A. Cooke ^p	work in progress

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C ₃ H ₅ F ₅ S [CH ₃ CH=CH-SF ₅]	propen-1-ylsulfur pentafluoride	W. Orellana, S. L. Stephens, W. C. Pringle, S. E. Novick, S. A. Cooke ^P	work in progress
C ₄ H ₇ F ₅ S [CH ₃ CH ₂ CH=CH-SF ₅]	buten-1-ylsulfur pentafluoride	W. Orellana, S. L. Stephens, W. C. Pringle, S. E. Novick, S. A. Cooke ^P	work in progress
C ₈ H ₁₄ [HCC(CH ₂) ₅ CH ₃]	1-octyne	M. P. Maturo, W. Orellana, D. A. Obenchain, ^{ad} R. Melchreit, S. A. Cooke, ^P S. E. Novick	manuscript in preparation
C ₄ H ₁₂ [CH ₄ C ₃ H ₈]	methane propane	K. I. Peterson ^e , D. P. Pullman ^e , W. Lin, ^k Y. J. Choi, E. A. Arsenault, S. E. Novick	manuscript in preparation
C ₅ H ₄ BrN	2-bromopyridine	A. Y. Chung, E. A. Arsenault, S. E. Novick	manuscript in preparation
C ₄ H ₃ F ₅ O ₄ [CF ₃ CF ₂ COOH HCOOH]	perfluoropropionic acid formic acid	D. A. Obenchain, W. Lin, ^k S. E. Novick, S. A. Cooke ^P	manuscript in preparation
AgCID ₂ AgCIDH [D ₂ AgCl] [HD AgCl]	hydrogen silver chloride	D. A. Obenchain, G. S. Grubbs II, ^x D. S. Frank, H. M. Pickett, S. E. Novick	all <i>para</i> and <i>ortho</i> isotopologues assigned, manuscript in preparation
C ₃ H ₂ F ₄ O ₂ [CF ₃ CFHCOOH]	2,3,3,3-tetrafluoropropionic acid	D. A. Obenchain, ^{ad} J. Wu, ^{ac} W. Orellana, X. Xu, ^{ac} S. A. Cooke, ^P S. E. Novick, W. Lin ^k	manuscript in preparation
C ₃ H ₄ F ₄ O ₃ [CF ₃ CFHCOOH H ₂ O]	2,3,3,3-tetrafluoropropionic acid water complex	D. A. Obenchain, ^{ad} J. Wu, ^{ac} W. Orellana, X. Xu, ^{ac} S. A. Cooke, ^P S. E. Novick, W. Lin ^k	manuscript in preparation
C ₃ H ₇ F ₅ O ₅ [(H ₂ O) ₃ CF ₃ CF ₂ COOH]	pentafluoropropionic acid trihydrate	G. S. Grubbs II, ^x D. A. Obenchain, D. S. Frank, S. E. Novick, S. A. Cooke, ^P A. Serrato III, ^k W. Lin ^k	spectrum assigned
C ₆ H ₃ F ₇ O ₂ [CF ₃ CF ₂ CF ₂ COOCH ₂ CH ₃]	ethyl heptafluorobutyrate	B. E. Long, D. S. Frank, L. Hansen, D. Obenchain, R. K Bohn, ^r S. E. Novick	mostly assigned, multiple conformations, work in prog
C ₃ H ₁₀ O [H ₂ O CH ₃ CH ₂ CH ₃]	water propane (¹³ C isotopomers)	D. A. Obenchain, W. Lin, ^k K. I. Peterson, ^e R. J. Saykally, ^z W. Lin ^k	assigned

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C ₈ H ₁₁ NO [NH ₂ C ₆ H ₄ CH ₂ CH ₂ OH]	4-aminophenyl ethanol	C. Bray, C. R. Rivera, E. A. Arsenault, D. A. Obenchain, S. E. Novick, J. L. Knee	assigned
C ₆ H ₅ F ₅ O ₂ [CH ₂ CHCH ₂ OOCF ₂ CF ₃]	allyl perfluoropropionate	D. S. Frank, S. E. Novick, S. A. Cooke, ^p G. S. Grubbs II	Assigned
ClCuH ₂ [H ₂ CuCl]	hydrogen copper chloride	H. M. Pickett, D. A. Obenchain, G. S. Grubbs II, S. E. Novick	4 isotopologues of <i>p</i> -H ₂ CuCl and 1 isotopologue of <i>o</i> -H ₂ CuCl measured and assigned
C ₃ HF ₃ N	hexafluoroacetone imine	D. A. Obenchain, D. J. Frohman, G. S. Grubbs II, B. E. Long, W. C. Pringle, S.E. Novick, S. A. Cooke ^p	spectra assigned, manuscript in preparation
C ₅ H ₅ F ₅ O ₂ [CF ₃ CF ₂ COOCH ₂ CH ₃]	ethyl pentafluoropropionate	D. A. Obenchain, B. E. Long, B. E. Baker, R. K. Bohn ^r , S. E. Novick, S. A. Cooke ^p	work in progress, assigned
C ₅ H ₁₀ O	2-methyl-3-buten-2-ol	B. E. Long, D. A. Obenchain, S. E. Novick, S. A. Cooke ^p	work in progress, assigned
C ₅ H ₈ Ne [Ne C ₅ H ₈]	neon methylenecyclobutane	A. J. Minei, ^q W. Lin, ^k L. Kang, ⁱ W. C. Pringle, S. E. Novick	²⁰ Ne and ²² Ne isotopomers assigned
C ₄ H ₉ ArN [Ar C ₄ H ₇ NH ₂]	argon aminocyclobutane	D. J. Frohman, W. C. Pringle, S. E. Novick	work in progress
C ₅ H ₇ NNe [Ne C ₄ H ₇ CN]	neon cyanocyclobutane	D. J. Frohman, W. Ndugire, S. E. Novick, W. C. Pringle	work in progress
C ₅ H ₇ ArN [Ar C ₄ H ₇ CN]	argon cyanocyclobutane	D. J. Frohman, D. A. Obenchain, S. E. Novick, W. C. Pringle	work in progress
C ₂ F ₂ N [F ₂ CCN]	1,1-difluoro-2-nitrile-ethynyl radical	L. Kang, ⁱ S. E. Novick	manuscript in preparation
C ₄ H ₇ N	3-pyrroline; 2,5-dihydropyrrole	W. Lin, ^k D. J. Frohman, S. E. Novick	work in progress
C ₆ H ₁₀ O	3-methylcyclopentanone	A. J. Minei, ^q W. C. Pringle, S. E. Novick	work in progress

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C ₆ H ₁₀ ArO [Ar C ₆ H ₁₀ O]	argon 3-methylcyclopentanone	A. J. Minei, ^q W. C. Pringle, S. E. Novick	work in progress
C ₆ H ₁₀	methylene cyclopentane	A. J. Minei, ^q W. C. Pringle, S. E. Novick	manuscript in preparation
C ₆ H ₁₀ Ar [Ar C ₆ H ₁₀]	argon methylene cyclopentane	A. J. Minei, ^q W. C. Pringle, S. E. Novick	manuscript in preparation
C ₆ H ₁₀ Ne [Ne C ₆ H ₁₀]	neon methylene cyclopentane	A. J. Minei, ^q W. C. Pringle, S. E. Novick	work in progress
C ₂ F ₆ O ₂ [CF ₃ OOCF ₃]	bis[trifluoromethoxy]peroxide	L. Kang, ⁱ S. E. Novick	spectroscopy completed
C ₄ H ₈ ArO [Ar C ₄ H ₈ O]	argon cyclobutanol	W. Lin, ^k G. Lindeke, T.T.E. Mould, W. Ndugire, S. E. Novick, W. C. Pringle	work in progress
C ₃ H ₆ S	thietane	D. McCamant, J. Schlier, S. E. Novick, W. C. Pringle	manuscript in preparation
C ₃ H ₆ ArS [Ar C ₃ H ₆ S]	argon thietane	D. McCamant, J. Schlier, S. E. Novick, W. C. Pringle	manuscript in preparation
C ₅ H ₈ Ar [Ar C ₅ H ₈]	argon cyclopentene	K. Ngogodo, L. Kang, S. E. Novick, W. C. Pringle	manuscript in preparation
C ₃ DF ₂ [F ₂ C-C≡CD]	deuterodifluoropropynyl radical	L. Kang, ⁱ S. E. Novick	work in progress
C ₃ H ₁₀ Si [(CH ₃) ₃ SiH]	trimethylsilane	L. Kang, ⁱ S. E. Novick	spectroscopy completed
C ₅ H ₁₀ Si [(CH ₃) ₃ SiC≡CH]	trimethylsilylacetylene	L. Kang, ⁱ S. E. Novick	spectroscopy completed
C ₇ H ₁₀ Si [(CH ₃) ₃ SiC≡C-C≡CH]	trimethylsilyldiacetylene	L. Kang, ⁱ S. E. Novick	spectroscopy completed
CIDSi [DSiCl]	deuterated chlorosilylene	L. Kang, ⁱ S. E. Novick	work in progress
C ₃ H ₁₀ Ge [(CH ₃) ₃ GeH]	trimethyl germane	W. Lin, ^k L. Kang, ⁱ S. E. Novick	work in progress
ANALYSIS	Bibliography of Weakly Bound Complexes	https://wesfiles.wesleyan.edu/home/snovick/SN_webpage/vdw.pdf	

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<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
CAgN (AgCN)	Silver monocyanoide	A. Nakane H. Kubota	FTMW spectrum Submitted to JMSt
AgHO(AgOH)	Silver monohydroxide	H. Hashimoto H. Kubota	FTMW spectrum In progress
AgHS(AgSH)	Silver monohydrosulfide	H. Hashimoto H. Kubota	FTMW spectrum In progress
CAuN (AuCN)	Gold monocyanoide	H. Kubota	FTMW spectrum Submitted to JMSt
AuHO (AuOH)	Gold monohydroxide	H. Hashimoto T. Takahashi	FTMW and mmW spectra In progress
AuHS (AuSH)	Gold monohydrosulfide	H. Kubota S. Uchida T. Takahashi	FTMW and mmW spectra In progress
AuS	Gold monosulfide	S. Mizuno	mmW spectrum Manuscript in preparation
BrNi (NiBr)	Nickel monobromide	M. Tajima	Hyperfine structure In progress
CNPd (PdCN)	Palladium monocyanoide	E. Y. Okabayashi Y. Kise	mmW spectrum In progress
CoNO	Cobalt mononitrosyl	S. Matsumoto	FTMW spectrum Analysis completed
ClNi (NiCl)	Nickel monochloride	E. Y. Okabayashi K. Murase	Excited electronic states In progress

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
CIPd (PdCl)	Palladium monochloride	Y. Kise	mmW spectrum In progress
FPd (PdF)	Palladium monochloride	Y. Kise	mmW spectrum In progress
OPd (PdO)	Palladium monoxide	T. Kurahara	mmW spectrum In progress
BrH ₂ N	Bromoamine	M. Tanaka	mmW spectrum In progress
C ₂ FI (ICCF)	Fluoroiodoacetylene ^a	Y. Shimoyama	FTMW spectrum In progress
C ₅ FN (FC ₅ N)	Fluorocyanodiacetylene S. Matsumoto	M. Hibi In progress	FTMW spectrum

^a In collaboration with Prof. T. Ogata

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<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
CHF ₂	Difluoromethyl radical	H. Ozeki S. Saito ^a	Analysis completed Manuscripts in preparation
C ₂ H ₄ N ₂	Aminoacetonitrile	C. Fujita H. Ozeki K. Kobayashi ^b C. Degli Esposti ^c	Three vibrational excited states. Coriolis analysis Astrophys. J. Suppl. 230:26(2017).
N ₂ O	Nitrous oxide	H. Ozeki S. Abe	isotopologues, pressure broadening measurements
O ₃	Ozone	H. Ozeki S. Bailleux ^e	main and isotopologues at 600 GHz
CD ₂	Methylene-d ₂	H. Ozeki S. Bailleux ^e	THz spectrum assigned manuscript in preparation
DHN	Amidogen	H. Ozeki K. Kobayashi ^b	THz spectrum Measurement in progress
C ₃ H ₄ N ₂ O ₂	Hydantoin	H. Ozeki S. Todaka H. Ihara R. Miyahara K. Kobayashi ^c M. Ohishi ^f	Ground and two vib. Exc. states Astron. & Astrophys. 600,A44(2017).
INO ₂	Iodine nitrite	H. Watahiki H. Ozeki S. Bailleux	Spectrum assigned.

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
EXPERIMENTAL	Detection of spontaneous emission with passive spectrometer		
ClH	Hydrogen Chloride	H. Ozeki	Pressure broadening measurements
C ₂ H ₄ O ₂	Methyl formate	H. Ozeki K. Kobayashi ^b S. Kohjiro ^d K. Kikuchi ^d	Absolute intensity measurement

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^b Department of Physics, Toyama University

^c University of Bologna

^d National Institute of Advanced Industrial Science and Technology

^e University of Lille 1

^f National Astronomical Observatory of Japan(NAOJ)

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<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C ₃ H ₆ O ₂ S ((CH ₃) ₂ S...CO ₂)	Dimethyl sulfide... carbon dioxide complex	M.M. Serafin	Numerous lines observed; Stark effect experiments in progress.
C ₅ H ₁₀ O ((CH ₃) ₂ O...HCCMe)	Dimethyl ether... propyne complex	M.M. Serafin	Numerous lines observed; in progress.
C ₃ H ₇ F ₃ O ((CH ₃) ₂ O...HCF ₃)	Dimethyl ether... fluoroform complex	W. Caminati ^{a)}	Normal isotopologue assigned; dipole moment measured. Internal motion analysis.
C ₃ H ₃ F ₃ (HCCH...HCF ₃)	Acetylene...fluoroform complex	M.M. Serafin	Normal, H ¹³ CCH...HCF ₃ and DCCD...HCF ₃ spectra assigned; internal motion analysis.
C ₄ H ₁₂ Si ((C ₂ H ₅) ₂ SiH ₂)	Diethylsilane	A.L. Steber, D.A. Obenchain, G.A. Guirgis, ^{b)} J.L. Neill, ^{c)} M.T. Muckle, ^{c)} B.H. Pate ^{c)}	²⁹ Si, ³⁰ Si and ¹³ C analysis of <i>anti-anti</i> , <i>anti-gauche</i> and <i>gauche-gauche</i> conformers using CP-FTMW broadband data. Manuscript in preparation.
C ₂ HCl ₂ FOS (CHCl ₂ F...OCS)	Dichlorofluoromethane... carbonyl sulfide complex	A.L. Steber	Normal isotopologue assigned. Cl nuclear quadrupole hyperfine analysis in progress.
C ₂ HCIF ₂ OS (CHCIF ₂ ...OCS)	Chlorodifluoromethane... carbonyl sulfide complex	A.L. Steber, M.D. Foellmer	Tentative assignment made.
C ₂ HCIF ₂ O ₂ (CHCIF ₂ ...CO ₂)	Chlorodifluoromethane... carbon dioxide complex	A.L. Steber, M.D. Foellmer, J.L. Neill, ^{c)} M.T. Muckle, ^{c)} B.H. Pate ^{c)}	Tentative assignment made of broadband spectrum. Nuclear quadrupole hfs analysis in progress.

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C ₄ H ₁₂ Ge (C ₂ H ₅) ₂ GeH ₂	Diethylgermane	A.L. Steber, G.A. Guirgis, J.L. Neill, ^(c) M.T. Muckle, ^(c) B.H. Pate ^(c)	<i>Gauche-gauche</i> , <i>anti-gauche</i> and <i>anti-anti</i> conformers assigned using CP-FTMW data. ¹³ C spectra assigned for <i>gauche-gauche</i> , <i>anti-gauche</i> conformers.
C ₇ H ₃ F ₅ (C ₆ F ₅ CH ₃)	Pentafluorotoluene	A.A. Elliott, J.M. Sexton, S.A. Cooke, ^(d) G.S. Grubbs II ^(e)	Substitution structure and dipole moment; internal motion. Manuscript in preparation.
C ₆ ClF ₅ (C ₆ F ₅ Cl)	Chloropentafluorobenzene	A.A. Elliott, J.M. Sexton, J.L. Neill, ^(c) M.T. Muckle, ^(c) B.H. Pate ^(c)	Substitution structure and nuclear hyperfine analysis; dipole moment in progress. Manuscript in preparation.
C ₄ H ₉ Br	1-bromobutane 2-bromobutane	D.A. Obenchain, Jung-Jin Oh, ^(f) Jihyun Kim ^(f)	Numerous conformers assigned. ⁷⁹ Br and ⁸¹ Br nuclear quadrupole hyperfine structure. Published (1-Br) <i>J. Mol. Spectrosc.</i> , 328 , (2016), 50.
C ₄ H ₇ Br	2-bromo-1-butene	Jihyun Kim, ^(f) Jung-Jin Oh ^(f) Heesu Jang ^(f)	⁷⁹ Br & ⁸¹ Br isotopologues assigned.
C ₄ H ₇ Br	2-bromo-2-butene	Jihyun Kim, ^(f) Jung-Jin Oh ^(f) Soohyun Ka ^(f)	⁷⁹ Br, ⁸¹ Br assigned; 2 conformers; internal rotation analysis in progress.
C ₄ H ₇ Br	4-bromo-1-butene	Jung-Jin Oh ^(f) Heesu Jang ^(f) Soohyun Ka ^(f)	⁷⁹ Br, ⁸¹ Br assigned for <i>ga</i> and <i>gg</i> conformers.
C ₈ H ₁₄ O	2-ethylcyclohexanone	Jihyun Kim, ^(f) Jung-Jin Oh ^(f)	Normal isotopologue assigned.
C ₄ H ₈ Si (H ₂ C=CH) ₂ SiH ₂	Divinylsilane	D.A. Obenchain, G.A. Guirgis ^(b)	Three conformers assigned; dipole moments measured. Manuscript in preparation.
C ₄ H ₆ F ₂ Si (H ₂ C=CH) ₂ SiF ₂	Difluorodivinylsilane	D.A. Obenchain, G.A. Guirgis ^(b)	Two conformers assigned. Manuscript in preparation.
CH ₃ BrF ₂ O (CHBrF ₂ ...H ₂ O)	Bromodifluoromethane– water complex	A.J. Thomas, D.A. Obenchain, A.L. Steber, ^(c) J.L. Neill, ^(c) B.H. Pate, ^(c) P. Groner ^(g)	Assigned ⁷⁹ Br, ⁸¹ Br isotopologues; all transitions doubled by H ₂ O internal rotation. Internal rotation analysis in progress.

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C ₃ H ₄ F ₂ (CH ₂ F ₂ ...HCCH)	Difluoromethane... acetylene complex	D.A. Obenchain, D.L. Jurkowski, A.J. Thomas	Normal isotopologue, ¹³ C ₂ H ₂ , ¹³ CH ₂ F ₂ assigned; Dipole moment measured. Manuscript in preparation.
C ₃ H ₆ F ₂ (CH ₂ F ₂ ...C ₂ H ₄)	Difluoromethane... ethylene complex	D.A. Obenchain	Normal isotopologue assigned; internal motion analysis.
C ₃ H ₆ ClF (CH ₂ ClF...C ₂ H ₄)	Chlorofluoromethane... ethylene complex	D.A. Obenchain C.L. Christenholz	³⁵ Cl, ³⁷ Cl isotopologues assigned; internal motion analysis in progress.
C ₂ H ₂ CiFO ₂ (CH ₂ ClF...CO ₂)	Chlorofluoromethane... carbon dioxide complex	D.A. Obenchain, C.L. Christenholz	³⁵ Cl, ³⁷ Cl isotopologues assigned; internal motion analysis in progress.
C ₃ H ₄ F ₄ (CHF ₃ ...C ₂ H ₃ F)	Trifluoromethane... vinyl fluoride complex	L.F. Elmuti, S.J. Stettner, R.E. Dorris	Normal isotopologue assigned; A, E states fit in progress using XIAM and BELGI.
C ₄ H ₈ O	1,2-epoxybutane	R.E. Dorris, C.L. Christenholz	Additional measurements 6–16 GHz. ¹³ C isotopologues identified.
C ₄ H ₅ F ₃ (C ₂ H ₃ F...C ₂ H ₂ F ₂)	Vinyl fluoride... 1,1-difluoroethylene complex	R.E. Dorris	Normal, four ¹³ C isotopologues assigned; dipole moment; structure. Published <i>J. Mol. Spectrosc.</i> , 335 , (2017), 74.
C ₈ H ₈ (C ₆ H ₆ ...HCCH)	Benzene...acetylene complex	E.R. Webster, R.E. Dorris, B.E. Luce	DCCD and HCCD isotopologues. Excited vibrational state analysis in progress (with McMahon, UW-Madison and Moazzen- Ahmahdi, U. Calgary).
C ₃ H ₃ BrO ₂ (C ₂ H ₃ Br...CO ₂)	Vinyl bromide...carbon dioxide complex	A.M. Anderton	⁷⁹ Br and ⁸¹ Br isotopologues assigned.
C ₂ HF ₃ Ne (C ₂ HF ₃ ...Ne)	Trifluoroethylene...neon complex	A.M. Anderton	²⁰ Ne and ²² Ne isotopologues assigned; dipole moment.
C ₂ H ₄ Cl ₂ (ClH ₂ CCH ₂ Cl)	<i>gauche</i> -1,2-dichloroethane	E.R. Webster A.S. Dikkumbura R.E. Dorris	(³⁵ Cl ₂), (³⁷ Cl ₂), (³⁵ Cl, ³⁷ Cl) species assigned; structure fit in progress.
C ₆ H ₄ F ₂ Ne (C ₆ H ₄ F ₂ ...Ne)	1,2-difluorobenzene... neon complex	J.M. Kang ^{h)} M.L. Grant A.G. Akmeemana S.P. Kamari	²⁰ Ne and ²² Ne isotopologue tentative assignments.

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C ₆ H ₄ ArF ₂ (C ₆ H ₄ F ₂ ...Ar)	1,3-difluorobenzene... argon complex	R.E. Dorris F.E. Marshall ^{e)} G.S. Grubbs II ^{e)}	Manuscript Submitted to <i>J. Phys. Chem. A</i>
C ₂ H ₄ ClF	1-chloro-2-fluoroethane	A.S. Dikkumbura	Normal, ³⁷ Cl, ¹³ C isotopologues assigned for <i>gauche</i> conformer; structure fit for <i>gauche</i> ; tentative assignment for <i>anti</i> conformer.
C ₈ H ₅ F (F(C ₆ H ₄)C≡CH)	3-fluorophenylacetylene	Heesu Jang ^{f)} Soohyun Ka ^{f)} Jung-Jin Oh ^{f)}	Manuscript in preparation.
C ₃ H ₄ Cl ₂	2,3-dichloropropene	A.S. Dikkumbura	Normal, ³⁷ Cl and ¹³ C isotopologues assigned for <i>gauche</i> conformer. Normal and ^{35/37} Cl species for <i>anti</i> conformer; structure fit in progress.
C ₃ F ₆	Perfluoropropene	E.N. Pinter A.L. Steber ⁱ⁾ B. Arenas ⁱ⁾ M. Schnell ⁱ⁾	Normal and ¹³ C isotopologues assigned 5–18 GHz; dipole moment. 75–110 GHz analysis in progress. Vibrationally excited states obs.
C ₃ ArF ₆ (C ₃ F ₆ ...Ar)	Perfluoropropene...Ar complex	R.E. Dorris	Normal isotopologue assigned.
C ₃ H ₂ F ₂ O ₂ (C ₂ H ₂ F ₂ ...CO ₂)	<i>cis</i> -1,2-difluoroethene...CO ₂ complex	W.C. Trendell	Normal isotopologue assigned. Internal motion analysis in progress.
C ₄ H ₃ FO ₄	Vinyl fluoride...(CO ₂) ₂ trimer (two isomers)	P. Kannangara B.H. Pate ^{c)}	Parent isotopologues for two structural forms assigned; isotopic measurements ongoing. Manuscript in progress. Spectrum for as yet unidentified third species assigned.

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<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
D ¹⁵ N	imidogen	M. Melosso ¹ , L. Dore ¹ , F. Tamassia ² , L. Bizzocchi ³ , et al.	THz spectrum. Manuscript in preparation
H ¹⁵ N	imidogen	L. Bizzocchi ³ , M. Melosso ¹ , L. Dore ¹ , F. Tamassia ² , et al.	Manuscript in preparation
D ₂ N	amidogen	M. Melosso ¹ , L. Dore ¹ , C. Degli Esposti ¹	<i>ApJS</i> , 233 , (2017) 15
D ₂ ¹⁵ N	amidogen	M. Melosso ¹ , L. Dore ¹ , F. Tamassia ² , L. Bizzocchi ³ , et al.	THz spectrum. Manuscript in preparation
DHN	amidogen	L. Bizzocchi ³ , D. Prudenzano ³ , M. Melosso ¹ , L. Dore ¹ , et al.	Measurements ongoing
DH ¹⁵ N	amidogen	L. Bizzocchi ³ , D. Prudenzano ³ , M. Melosso ¹ , L. Dore ¹ , et al.	Measurements ongoing
DH ₂ N	ammonia-d ₁	L. Dore ¹ , C. Puzzarini ¹ , M. Melosso ¹	HFS analysis completed
D ₂ HN	ammonia-d ₂	L. Dore ¹ , C. Puzzarini ¹ , M. Melosso ¹ , Z. Kisiel ⁸	HFS analysis ongoing

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
D ₃ N	ammonia-d ₃	L. Dore ¹ , C. Puzzarini ¹ , M. Melosso ¹ , Z. Kisiel ⁸	HFS analysis ongoing
H ¹⁵ N ₂ ⁺	diazenylium- ¹⁵ N	L. Dore ¹ , L. Bizzocchi ³ , F. Tamassia ² , et al.	A&A, 604 , (2017) A26
ArH ⁺	argonium	M. Melosso ¹ , L. Dore ¹ , F. Tamassia ² , L. Bizzocchi ³ , D. Prudenzeno ³	Ar broadening. Manuscript in preparation
C ₂ D ₃ P (CD ₃ CP)	perdeuterated-phosphapropine	M. Melosso ¹ , L. Dore ¹ , F. Tamassia ² , C. Degli Esposti ¹ , L. Bizzocchi ³	Submillimeter spectrum. Manuscript in preparation
C ₂ H ₂ N ₂ (HNCHCN)	C-cyanomethanimine	M. Melosso ¹ , L. Dore ¹ , C. Puzzarini ¹ , L. Spada ^{1,2} , et al.	A&A, 609 (2018), A121
C ₂ H ₅ N (CH ₃ CHNH)	ethanimine	A. Melli ¹ , M. Melosso ¹ , L. Dore ¹ , C. Puzzarini ¹ , L. Spada ^{1,2}	<i>ApJ</i> , in press
C ₂ H ₄ N ₂ (H ₂ NCH ₂ CN)	aminoacetonitrile	C. Degli Esposti ¹ , M. Melosso ¹ , L. Dore ¹	<i>ApJS</i> , 230 , (2017) 26
C ₃ H ₅ N (HCCCH ₂ NH ₂)	propargylamine	C. Degli Esposti ¹ , L. Bizzocchi ³ , C. Puzzarini ¹ , L. Dore ¹ , et al.	A&A, submitted
C ₆ H ₁₀ N ₂ (HCCCH ₂ NH ₂) ₂	propargylamine dimer	C. Degli Esposti ¹ , M. Melosso ¹ , L. Spada ^{1,6} , A. Maris ¹ , et al.	Analysis completed
C ₃ H ₇ NO (HCCCH ₂ NH ₂ – H ₂ O)	propargylamine – water complex	C. Degli Esposti ¹ , M. Melosso ¹ , L. Spada ^{1,6} , A. Maris ¹ , et al.	Spectrum assigned
C ₃ H ₅ N (HCCCH ₂ NH ₂)	propargylamine	F. Tamassia ² , E. Canè ² , M. Melosso ¹ , B. Ballotta ¹ , C. Degli Esposti ¹ , L. Dore ¹	FIR spectrum. Analysis in progress

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C_3HNO (OCCHCN)	cyanoketene	M. Melosso ¹ , B. Ballotta ¹ , L. Dore ¹ , C. Degli Esposti ¹	Submm-wave spectrum
$C_2H_4N_2$ (CH ₃ NHCN)	<i>N</i> -cyano-methylamine	D. Prudenzeno ³ , L. Bizzocchi ³ , M. Melosso ¹ , L. Dore ¹ , et al.	Measurements ongoing
C_3HN	cyanoacetylene	L. Bizzocchi ³ , F. Tamassia ² , M. Melosso ¹ , L. Dore ¹ , H. Spahn ⁴ , et al.	<i>ApJS</i> , 233 , (2017) 11; submm-wave and IR ongoing
DC_3N	<i>d</i> -cyanoacetylene	L. Bizzocchi ³ , F. Tamassia ² , M. Melosso ¹ , L. Dore ¹ , A. Pietropolli-Charmet ⁵ , et al.	IR measurements completed; mm-wave and submm-wave ongoing
$C_5H_{14}N_2O_2$ ((CH ₃) ₃ N – CH ₃ CH ₂ NO ₂)	Trimethylamine - Nitroethane complex	L. Spada ^{1,6} , W. Li ¹ , L. Evangelisti ¹ , S. Melandri ¹ , C. Puzzarini ¹ , et al. ^{1,6}	Spectrum assigned Manuscript in preparation
HOS^+ (HSO ⁺)	Hydrogen sulfur oxide cation	C. Puzzarini ¹ , V. Lattanzi ³ , S. Alessandrini ^{1,6} , J. Gauss ⁷	Tentative assignment
CO	Carbon monoxide	C. Puzzarini ¹ , et al.	Self, N ₂ , O ₂ , H ₂ , He, Ar broadening
C_2ClF_3	Trifluorochloro-ethylene	C. Puzzarini ¹ , N. Tasinato ⁶ , S. Stoppa ⁵ , J. Gauss ⁷ , et al.	³⁵ Cl, ³⁷ Cl: Manuscript in preparation
CH_2F_2	difluoromethane	C. Puzzarini ¹ , N. Tasinato ⁶ , S. Stoppa ⁵ , et al.	pressure broadening: Work in progress
O ₂ S	sulfur dioxide	N. Tasinato ⁶ , S. Stoppa ⁵ , C. Puzzarini ¹ , et al.	CO ₂ , H ₂ , He broadening: <i>JQSRT</i> , 203 (2017), 367
O ₂ S	sulfur dioxide	N. Tasinato ⁶ , S. Stoppa ⁵ , C. Puzzarini ¹ , et al.	N ₂ , O ₂ broadening: <i>JQSRT</i> , 198 (2017), 155

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C ₂ S	thioethenylidene	C. Puzzarini ¹ , J. Gauss ⁷ , <i>et al.</i>	Sub-mmwave spectrum: manuscript in preparation
DHS	hydrogen sulfide-d ₁	C. Puzzarini ¹ , J. Gauss ⁷	hfs analysis & THz: manuscript in preparation
GeS	germanium sulfide	C. Puzzarini ¹ , J. Gauss ⁷	Sub-mmwave spectrum
C ₅ H ₁₂ F ₂ O ((CH ₃) ₃ COH-CH ₂ F ₂)	difluoromethane-tertbutylalcohol complex	L. Spada ^{1,6} , C. Puzzarini ¹ ,	<i>JMS</i> , 337 (2017), 90
C ₃ H ₄ O ₂	acrylic acid	C. Calabrese ¹ , L. Dore ¹ , <i>et al.</i>	Submm-wave spectrum, excited states

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<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C ₄ H ₁₂ O ₂ (CH ₃ CH ₂ OH...CH ₃ CH ₂ OH)	Ethanol dimer	Loru, Peña, Sanz	J. Mol. Spectrosc. 335, 93-101 (2017)
C ₅ H ₁₁ NO	Prolinol	Loru, Sanz, Pérez ² , Evagelisti ² , Pate ²	Two conf. assigned structure determined Manuscript in prep.
C ₅ H ₁₂ O ₅	Ribitol	Peña, Sanz Alonso ¹ , Alonso ¹	Five conf. assigned Manuscript in prep
C ₅ H ₁₃ NO ₂ (C ₅ H ₁₁ NO...H ₂ O)	Prolinol-H ₂ O	Loru, Sanz, Pérez ² , Evagelisti ² , Pate ²	Four conf. assigned Manuscript in prep.
C ₆ H ₁₅ N	Triethylamine	Peña, Sanz, Myllys ⁷	Two new conf. assigned
C ₆ H ₁₅ N-H ₂ O	Triethylamine-H ₂ O	Peña, Sanz Myllys ⁷	One conf. assigned
C ₉ H ₁₄ O	Cyclooctanone	Burevschi, Peña, Sanz	Two conf. assigned structure determined
C ₉ H ₁₄ O--(H ₂ O) _n	Cyclooctanone-(H ₂ O) _n	Burevschi, Sanz	Several hydrates and conf. assigned
C ₁₀ H ₆ O ₂	Naphtoquinone	Sanz, Panchagnula, Pérez ² , Evagelisti ² , Pate ²	Spectrum assigned structure determined
C ₁₀ H ₈ O ₃ (C ₁₀ H ₆ O ₂ ...H ₂ O)	Naphtoquinone-H ₂ O	Sanz, Panchagnula, Pérez ² , Evagelisti ² , Pate ²	Conf. assigned
C ₁₀ H ₁₄ O	Carvone	Loru, Bermudez, Sanz	New conf. assigned structure determined, Manuscript in prep.

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
$C_{10}H_{14}O$	Perillaldehyde	Loru, Vigorito, Tang, Sanz	New conf. assigned structure determined, Manuscript in prep.
$C_{10}H_{16}$	Limonene	Santos, Loru, Sanz,	New conf. assigned structure determined Manuscript in prep.
$C_{10}H_{2n+16}O_n$ $C_{10}H_{16}-(H_2O)_n$	Limonene-(H ₂ O) _n	Murugachandran, Tang, Pena, Loru, Sanz	Several hydrates and conf. assigned
$C_{10}H_{16}O$	Limonene oxide	Loru, Jarman, Sanz, Quesada-Moreno ³ , Avilés-Moreno ³ , López-González ³ , Huet ⁴	ChemPhysChem, 18, 274-280 (2017)
$C_{10}H_{16}O$	Dihydrocarvone	Tang, Loru, Sanz,	Four conf. assigned Manuscript in prep.
$C_{10}H_{18}O$	Dihydrocarveol	Loru, Jarman, Sanz	Four conf. assigned Manuscript in prep.
$C_{10}H_8O_3$ ($C_{10}H_6O_2 \cdots H_2O$)	Perillaldehyde-(H ₂ O) _{1,2}	Vigorito, Loru, Sanz	Several conf. assigned
$C_{10}H_{18}O$	Geraniol	Sanz group Mohaib ⁵ , Kleiner ⁶	Spectrum observed one conf assigned
$C_{10}H_{2n+16}O_{n+1}$ ($C_{10}H_{16}O-(H_2O)_n$)	Fenchone-(H ₂ O) _n	Loru, Sanz	Several hydrates and Dréan ⁴ , Chrayteh ⁴ conf. assigned
$C_{12}H_{22}O_2$ ($C_{10}H_{16}O \cdots CH_3CH_2OH$)	Fenchone-Ethanol	Loru, Sanz	Three conf. assigned Manuscript in prep.
$C_{17}H_{30}O$	Civetone	Burevschi, Loru, Sanz	One conf. assigned

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<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C_3H_4N	Ethyl cyanide	Benjamin E. Arenas ^{1,2,3} , Sébastien Gruet ^{1,2} , Amanda L. Steber ^{1,2}	Experiments Completed: Most Assignments Completed
$C_3H_6O_2$	Methyl acetate (75- 110GHz)	Benjamin E. Arenas ^{1,2,3} , Amanda L. Steber ^{1,2}	Experiments Completed: Most Assignments Completed
$C_3H_8N_2O_4$ ($C_3H_4N_2O_2$ and $C_3H_4N_2O_2$ - (H_2O) _n n=1-2)	Hydantoin monomer and hydantoin-water complexes	Sébastien Gruet ^{1,2} , Cristóbal Pérez ^{1,2}	<i>PCCP</i> 20 (2018), 5545
C_3H_9NO	Alaninol	Benjamin E. Arenas ^{1,2,3} , Mariyam Fatima ^{1,2,3}	Experiments Completed: Most Assignments Completed
C_3H_9GeI ($(CH_3)_3GeI$)	Trimethyl germanium iodide	David Schmitz ³	Experiments Completed: Manuscript in prep.
$C_3H_{16}O_8$ ($C_3H_6O_3$ -(H_2O) _n n=1-5)	Glycolaldehyde-water complexes	Cristóbal Pérez ^{1,2}	Experiments Completed: Manuscript in prep.

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C ₅ H ₁₀ O	Tetrahydropyran (75-110GHz)	Sébastien Gruet ^{1,2}	Experiments Completed: Manuscript in prep.
C ₅ H ₁₃ NO	Valinol	Benjamin E. Arenas ^{1,2,3} , Mariyam Fatima ^{1,2,3}	Experiments Completed: Most Assignments Completed
C ₆ H ₁₅ NO	Leucinol	Benjamin E. Arenas ^{1,2,3} , Cristóbal Pérez ^{1,2} , Mariyam Fatima ^{1,2,3}	Experiments Completed: Most Assignments Completed
C ₆ H ₁₅ NO	<i>iso</i> -Leucinol	Benjamin E. Arenas ^{1,2,3} , Mariyam Fatima ^{1,2,3}	Experiments Completed: Most Assignments Completed
C ₇ H ₄ N ₂ O ₂	2-Nitrobenzonitrile	Jack B. Graneek ^{1,2}	Experiments Completed: Manuscript submitted
C ₇ H ₄ N ₂ O ₂	3-Nitrobenzonitrile	Jack B. Graneek ^{1,2}	Experiments Completed: Manuscript submitted
C ₇ H ₇ NO ₃	4-Nitroanisole	Jack B. Graneek ^{1,2} , Cristóbal Pérez ^{1,2}	<i>J. Chem. Phys.</i> 147 (2017), 154306
C ₈ H ₈ O	Vinylphenylether	Mariyam Fatima ^{1,2,3} , Cristóbal Pérez ^{1,2} , Dominic Bernhard ⁵ , Markus Gerhards ⁵	Experiments Completed: Manuscript in prep.
C ₈ H ₁₆ O ₂	Cyclohexane-methanol	Cristóbal Pérez ^{1,2} , Mariyam Fatima ^{1,2,3} , Jonas Altnöder ⁶ , Martin A. Suhm ⁶	Experiments Completed: Manuscript in prep.

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
$C_9H_{12}O_2$ ($C_8H_8O-CH_4O$)	Vinylphenylether-methanol complexes	Mariyam Fatima ^{1,2,3} , Cristóbal Pérez ^{1,2} , Dominic Bernhard ⁵ , Markus Gerhards ⁵	Experiments Completed: Manuscript in prep.
$C_{10}H_{16}O$	Adamantanol (2–12, 75–110 GHz)	Sébastien Gruet ^{1,2}	Experiments Completed: Most Assignments Completed
$C_{10}H_{18}O_2$ ($C_{10}H_{16}O-H_2O$)	Thujone-water complexes	Cristóbal Pérez ^{1,2} , Zbigniew Kisiel ⁷	Experiments Completed: Manuscript in prep.
$C_{10}H_{20}O$	3,7-Dimethyloct-6-en- 1-ol (citronellol)	Chris Medcraft ⁸ , Sérgio Domingos ^{1,2}	Experiments Completed: Manuscript in prep.
$C_{10}H_{22}O_6$ ($C_{10}H_{20}O_5-H_2O$)	15-Crown-5-water complexes	Cristóbal Pérez ^{1,2} , Juan Carlos Lopez ⁹	Experiments Completed: Manuscript in prep.
$C_{11}H_{11}N$ ($C_6H_6-C_5H_5N$)	Benzene-pyridine complexes	Mariyam Fatima ^{1,2,3} , Cristóbal Pérez ^{1,2} , Barbara M. Giuliano ⁴	Experiments Completed: Most Assignments Completed
$C_{11}H_{20}O_2$ ($C_{10}H_{16}O-CH_4O$)	Camphor-methanol complexes	Mariyam Fatima ^{1,2,3} , Cristóbal Pérez ^{1,2}	Experiments Completed: Manuscript in prep.
$C_{12}H_{10}$	Acenaphthene (75- 110GHz)	Sébastien Gruet ^{1,2} , Amanda L. Steber ^{1,2}	Experiments Completed: Manuscript in prep.
$C_{12}H_{10}O_2$ ($C_{12}H_8O-H_2O$)	Dibenzofuran-water complexes	Mariyam Fatima ^{1,2,3} , Amanda L. Steber ^{1,2}	Experiments Completed: Most Assignments Completed

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
$C_{12}H_{12}O_2$ ($C_{12}H_8-(H_2O)_n$ n=1-2)	Acenaphthylene-water complexes	Amanda L. Steber ^{1,2}	Experiments Completed: Manuscript in prep.
$C_{12}H_{16}O_4$ ($C_{12}H_{10}O-(H_2O)_n$ n=1-3)	Diphenylether-water complexes	Mariyam Fatima ^{1,2,3} , Cristóbal Pérez ^{1,2}	Experiments Completed: Manuscript in prep.
$C_{12}H_{22}O_2$	Menthyl acetate	Anna Krin ^{1,2} , Cristóbal Pérez ^{1,2}	Experiments Completed: Manuscript in prep.
$C_{12}H_{26}O_7$ ($C_{12}H_{24}O_6-H_2O$)	18-Crown-6-water complexes	Cristóbal Pérez ^{1,2} , Juan Carlos Lopez ⁹	Experiments Completed: Manuscript in prep.
$C_{13}H_{12}O_2$ ($C_{12}H_8O-CH_4O$)	Dibenzofuran-methanol complexes	Mariyam Fatima ^{1,2,3} , Cristóbal Pérez ^{1,2} , Anja Poblitzki ⁶ , Martin A. Suhm ⁶	Experiments Completed: Most Assignments Completed
$C_{13}H_{13}NO_2$ ($C_{13}H_9N-(H_2O)_n$ n=1-2)	Phenanthridine-water complexes	Amanda L. Steber ^{1,2} , Anouk M. Rijs ¹⁰ , Cristóbal Pérez ^{1,2} , Sébastien Gruet ^{1,2}	Experiments Completed: Most Assignments Completed
$C_{13}H_{16}O_3$ ($C_{13}H_{10}-(H_2O)_n$ n=1-3)	Fluorene-water complexes	Amanda L. Steber ^{1,2} , Sébastien Gruet ^{1,2}	Experiments Completed: Most Assignments Completed
$C_{13}H_{24}O_3$ ($C_{10}H_{16}O-C_3H_8O_2$)	Camphor-1,2-propanediol complexes	Cristóbal Pérez ^{1,2} , Anna Krin ^{1,2} , Mariyam Fatima ^{1,2,3}	Experiments Completed: Most Assignments Completed
$C_{14}H_{14}O_2$ ($C_{14}H_{10}-(H_2O)_n$ n=1-2)	Phenanthrene-water complexes	Amanda L. Steber ^{1,2} , Anouk M. Rijs ¹⁰ , Cristóbal Pérez ^{1,2} , Donatella Loru ^{1,2}	Experiments Completed: Most Assignments Completed

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
$C_{14}H_{14}O_4$ ($C_{14}H_{12}O_3 \cdot H_2O$)	Oxybenzone-water complexes	Sérgio Domingos ^{1,2}	Experiments Completed: Manuscript in prep.
$C_{14}H_{23}NO$	Camphor imine	Sérgio Domingos ^{1,2}	Experiments Completed: Manuscript in prep.
$C_{14}H_{28}O_3$ ($C_{10}H_{16}O \cdot (C_2H_6O)_n$ n=1-2)	Camphor-ethanol complexes	Mariyam Fatima ^{1,2,3} , Cristóbal Pérez ^{1,2}	Experiments Completed: Manuscript in prep.
$C_{15}H_{24}O_3$ ($C_8H_{16}O_2 \cdot C_7H_8O$)	Cyclohexane-methanol-benzyl alcohol complexes	Cristóbal Pérez ^{1,2} , Mariyam Fatima ^{1,2,3} , Jonas Altnöder ⁶ , Martin A. Suhm ⁶	Experiments Completed: Manuscript in prep.
$C_{16}H_{16}O_2$ (C_8H_8O) _n n=1-2	Styrene oxide monomer and dimer	Sérgio Domingos ^{1,2}	Experiments Completed: Manuscript in prep.
$C_{16}H_{18}O_2$ ($C_{12}H_8O \cdot C_4H_{10}O$)	Dibenzofuran- <i>tert</i> -butylalcohol complexes	Mariyam Fatima ^{1,2,3} , Cristóbal Pérez ^{1,2} , Anja Poblitzki ⁶ , Martin A. Suhm ⁶	Experiments Completed: Most Assignments Completed
$C_{16}H_{40}O_4$ ($C_4H_{10}O$) _n n=3-4	<i>tert</i> -butylalcohol trimer and tetramer	Cristóbal Pérez ^{1,2} , Mariyam Fatima ^{1,2,3}	Experiments Completed: Most Assignments Completed
$C_{18}H_{11}F$	2-F-Tetrahelixene	Sérgio Domingos ^{1,2}	Experiments Completed: Manuscript in prep.
$C_{18}H_{14}O$ ($C_{18}H_{12} \cdot H_2O$)	Tetrahelixene-water complexes	Sérgio Domingos ^{1,2}	Experiments Completed: Manuscript in prep.

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
$C_{18}H_{22}O$	4-Methylbenzylidene	Cristóbal Pérez ^{1,2} , Anna Krin ^{1,2}	Experiments Completed: Manuscript in prep.
$C_{18}H_{24}O_2$	β -Estradiol	Sabrina Zinn ^{1,2}	Experiments Completed: Manuscript in prep.
$C_{20}H_{26}O$	Diadamantanyl ether	Cristóbal Pérez ^{1,2}	Experiments Completed: Most Assignments Completed
$C_{20}H_{34}O_2$ ($C_{10}H_{16}O$ - $C_{10}H_{18}O$)	Camphor-fenchol complexes	Mariyam Fatima ^{1,2,3}	Experiments Completed: Most Assignments Completed
$C_{20}H_{40}O_2$ ($C_{10}H_{20}O$) ₂	Menthol dimer	Cristóbal Pérez ^{1,2}	Experiments Completed: Most Assignments Completed
$C_{22}H_{26}O_2$ ($C_{12}H_{10}O$ - $C_{10}H_{16}O$)	Diphenylether-adamantanol complexes	Mariyam Fatima ^{1,2,3} , Cristóbal Pérez ^{1,2}	Experiments Completed: Manuscript in prep.
$C_{24}H_{16}O_2$ ($C_{12}H_8O$) _n n=1-2	Dibenzofuran monomer and dimer	Mariyam Fatima ^{1,2,3} , Cristóbal Pérez ^{1,2} , Anja Poblitzki ⁶ , Martin A. Suhm ⁶	Experiments Completed: Most Assignments Completed
$C_{24}H_{20}O_2$ ($C_{12}H_{10}O$) _n n=1-2	Diphenylether monomer and dimer	Chris Medcraft ⁸ , Sabrina Zinn ^{1,2} , Mariyam Fatima ^{1,2,3} , Cristóbal Pérez ^{1,2}	Experiments Completed: Manuscript in prep.
$C_{24}H_{26}O_3$ ($(C_{12}H_{10})_2$ - $(H_2O)_n$ n=1-3)	Acenaphthene dimer-water complexes	Amanda L. Steber ^{1,2} , Cristóbal Pérez ^{1,2}	Experiments Completed: Manuscript in prep.

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
$C_{27}H_{20}$	4-Fluoren-9-ylidene-3-methyl-1,2,3,4-tetrahydro-phenanthrene	Sérgio Domingos ^{1,2}	<i>Angew. Chem. Int. Ed.</i> 56 (2017), 11209

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<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C ₁₀ H ₁₄ O	Verbenone	F. E. Marshall ¹ , G. Sedo ² , C. West ³ , B. H. Pate ³ , S. M. Allpress ⁴ , C. J. Evans ⁴ , P. D. Godfrey ⁵ , D. McNaughton ⁵ , G. S. Grubbs II ¹	Published in <i>J. Molec. Spectrosc.</i> 342 (2017) 109.
C ₁₀ H ₁₆ O	Myrtenol	F. E. Marshall ¹ , G. Sedo ² , G. S. Grubbs II ¹	Manuscript in Preparation
C ₁₁ H ₁₈ O	Nopol	F. E. Marshall ¹ , G. Sedo ² , G. S. Grubbs II ¹	Manuscript in Preparation
C ₁₄ H ₂₀ O	Verbenone-3-butyn-2-ol vdW Complex (chiral tag)	L. Evangelisti ⁶ , K. J. Mayer ³ , M. S. Holdren ³ , T. Smart ³ , C. West ³ , B. H. Pate ³ , G. Sedo ² , F. Marshall ¹ , G. S. Grubbs II ¹	Assignments in Progress

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<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
$C_4H_8S_2$	2-Methyl-1,3-dithiolane	L. Nguyen, ¹ W. Stahl ² V. Van ^{2,*}	<i>J. Mol. Struct.</i> 1156 (2018) 348.
$C_4H_{10}S$ ($CH_3SC_3H_7$)	Methyl propyl sulfide	L. Tulimat, ^{2,*} W. Stahl ²	Under review
$C_5H_6O_2$ ($CH_3C\equiv CCOOCH_3$)	Methyl-2-butynoate	K. Eibl ²	Assignments Completed, Fit in Progress
C_5H_8O ($CH_3C\equiv CCH(OH)CH_3$)	3-Pentyn-2-ol	K. Eibl ²	Assignments in Progress
C_5H_8O ($HC\equiv CCH(OH)CH_2CH_3$)	1-Pentyn-3-ol	K. Eibl ²	Assignments in Progress
C_5H_8O ($HC\equiv CCH_2CH_2CH_2OH$)	4-Pentyn-1-ol	K. Eibl ²	Assignments in Progress
$C_5H_9O_2N$	N-acetyl-N-methylacetamide	K. Eibl ² , R. Kannengießer ^{2,*} L. Nguyen ¹	Manuscript in Preparation
C_6H_8O	2,5-Dimethylfuran	L. Nguyen ¹ , W. Stahl ² V. Van ^{2,*} V. Ilyushin ³	<i>J. Mol. Spectrosc.</i> 343 (2018) 121.
$C_6H_8O_2$ ($CH_3C\equiv CCOOCH_2CH_3$)	Ethyl-2-butynoate	K. Eibl ²	Assignments in Progress
$C_6H_{10}O$	4-Hexyn-3-ol	K. Eibl ²	Manuscript in Preparation
$C_6H_{10}O$ ($CH_3COC_4H_7$)	4-Methylpent-3-en-2-one	H. Mouhib, ⁴ W. Stahl ²	Assignments of Two Rotor Completed, 3 rd rotor in Progress
$C_6H_{13}OS$ ($CH_3O(CH_2)_2C_3H_6SH$)	4-Methoxy-2-methylbutane-2-thiol	H. Mouhib, ⁴ W. Stahl ²	Manuscript in Preparation

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
$C_7H_6O_2$	Phenyl formate	L. Ferres, ² L. Nguyen ¹ , H. Mouhib ⁴	<i>J. Mol. Spectrosc.</i> 337 (2017) 59.
$C_8H_{10}O$ ($(CH_3)_2C_6H_4OCH_3$)	<i>o</i> -Methyl anisole	L. Ferres, ² L. Nguyen ¹ , H. Mouhib ⁴	<i>ChemPhysChem</i> 18 (2017) 1855.
$C_8H_{10}O$ ($(CH_3)_2C_6H_4OCH_3$)	<i>m</i> -Methyl anisole	L. Ferres, ² L. Nguyen ¹	<i>J. Chem. Phys.</i> (2018) Proof in Progress.
$C_8H_{10}O$ ($(CH_3)_2C_6H_4OCH_3$)	<i>p</i> -Methyl anisole	L. Ferres, ² L. Nguyen ¹ I. Kleiner ¹	<i>J. Mol. Spectrosc.</i> 343 (2018) 44.
$C_8H_8O_2$ ($CH_3COOC_6H_5$)	Phenyl acetate	L. Ferres ²	Assignments Completed, Fit in Progress
C_8H_8OS ($CH_3COSC_6H_5$)	Phenylthioacetate	L. Ferres ²	Assignments Completed, Fit in Progress
$C_8H_{16}O$ ($CH_2=CHCH(OH)C_5H_{11}$)	Octen-3-ol	H. Mouhib, ⁴ W. Stahl ²	Assignments in Progress
$C_8H_{16}O$ ($C_7H_{15}CHO$)	Octanal	H. Mouhib, ⁴ W. Stahl ²	<i>ChemPhysChem</i> 18 (2017) 2631.
$C_9H_{12}O$ ($(CH_3)_2C_6H_3OCH_3$)	2,4-Dimethylanisole	L. Ferres ²	Assignments Completed, Fit in Progress
$C_9H_{12}O$	2,6-Dimethylanisole	L. Ferres ²	Assignments Completed, Fit in Progress
$C_9H_{12}O$	2,3-Dimethylanisole	L. Ferres ²	Under Review
$C_9H_{12}O$	3,4-Dimethylanisole	L. Ferres ²	Manuscript in Preparation
$C_9H_{12}O$	3,5-Dimethylanisole	L. Ferres ²	Assignments Completed, Fit in Progress
$C_9H_{12}O$	2,5-Dimethylanisole	L. Ferres ²	Assignments Completed, Fit in Progress
$C_{10}H_{12}O$	Rose oxide	H. Mouhib, ⁴ W. Stahl ² V. Van ^{2,*}	Manuscript in Preparation

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<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C ₆ H ₇ NO	2-aminophenol	K. Byerly G. A. Laubacher ¹ M. J. Tubergen	Spectrum recorded; assignment in progress
C ₇ H ₈ O ₂	guaiacol	A. Fox M. J. Tubergen R. M. Gurusinghe ²	Spectrum and ¹³ C isotopomers assigned, argon spectrum assigned; water complex spectra recorded; manuscript in prep.
C ₃ H ₉ NO	2-methoxyethylamine	N. Harper ³ B. Basenback ¹ R. M. Gurusinghe ² M. J. Tubergen	¹³ C isotopomers assigned. Water complex spectrum assigned. manuscript in preparation
C ₉ H ₁₀	α -Methylstyrene, cis- β -Methylstyrene Trans- β -Methylstyrene	R. M. Gurusinghe ² M. J. Tubergen	Spectra assigned including internal Rotation. Manuscript in Preparation

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<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C ₁₃ H ₈ O	9-fluorenone	G. Sedo (UVa Wise) C. West	JMS 335 (2017) 43.
C ₁₃ H ₁₀ O	benzophenone	G. Sedo (UVa Wise) C. West	JMS 335 (2017) 43.
C ₆ H ₆ FS	2-fluorothiophenol	W. Sun	J Mol Struct 1144 (2017) 496.
C ₇ H ₅ FO	2-fluorobenzaldehyde	I. Lozada, W. Sun	JPC A in press
C ₇ H ₅ FO	3-fluorobenzaldehyde	I. Lozada, W. Sun	JPC A in press
C ₃ HNS	isothiocyanatoethyne	W. Sun	paper in preparation
C ₅ HNS	isothiocyanato-1,3-butyne	W. Sun	paper in preparation
C ₄ N ₂ S	cyano isothiocyanatoethyne	W. Sun	paper in preparation
C ₇ H ₄ NO	phenyl isocyanate	W. Sun	str. analysis in progress
C ₇ H ₅ NS	phenyl thioisocyanate	W. Sun	str. analysis in progress
C ₈ H ₇ F	2-fluorostyrene	S. Stephens	str. analysis in progress
C ₈ H ₇ F	4-fluorostyrene	S. Stephens	str. analysis in progress
C ₃ H ₆ O ₂ S	3-mercaptopropionic acid	W. Silva	assignment in progress
C ₄ H ₈ O ₂ S	methyl 3-mercaptopropionate	W. Silva	assignment in progress

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<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C_3H_3S	trimethylene sulfide (thietane)	D. Desmond	MW parent, 13C, 34S, 33S- assigned far IR in progress
C_3H_3O	trimethylene oxide (oxetane)	D. Desmond O. Mahassneh	MW parent assigned 13C, 18O done far IR in progress

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(Entries marked with * are collaborative studies between this laboratory and that of A. C. Legon, School of Chemistry, University of Bristol, Cantock's Close, BRISTOL BS8 1TS, UK)

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
CClFPt*	FCPtCl	D. Bittner, G. Cooper, C. Medcraft	Spectra of isotopologues assigned.
CF ₂ Pt*	FCPtF	D. Bittner, G. Cooper, C. Medcraft	Spectra of isotopologues assigned.
CH ₃ F ₃ IP*	H ₃ P...ICF ₃	S. L. Stephens	Spectrum assigned.
CH ₄ ArN ₂ O*	CH ₄ N ₂ O...Ar (urea-argon complex)	C. Medcraft	Spectrum assigned.
CH ₄ ArN ₂ S*	CH ₄ N ₂ S...Ar (thiourea-argon complex)	C. Medcraft	Spectrum assigned.
CH ₆ N ₂ OS*	CH ₄ N ₂ S...H ₂ O (thiourea-water complex)	C. Medcraft	Spectrum assigned.
C ₂ H ₂ AgI*	C ₂ H ₂ ...Ag-I	S. L. Stephens	Spectrum assigned.
C ₂ H ₂ CuF*	C ₂ H ₂ ...Cu-F	S.L. Stephens, D.P. Zaleski	Spectrum assigned, isotopic work.
C ₂ H ₂ CuI*	C ₂ H ₂ ...Cu-I	S. L. Stephens, D. Bittner	Spectrum assigned.
C ₂ H ₃ BrN ₂ *	4-Bromopyrazole	G. Cooper, C. Medcraft	Published: <i>J. Chem. Phys.</i> 147 , 214303 (2017)
C ₂ H ₃ IN ₂ *	4-Iodopyrazole	G. Cooper, C. Medcraft	Published: <i>J. Chem. Phys.</i> 147 , 214303 (2017)
C ₂ H ₄ AgF*	C ₂ H ₄ ...Ag-F	S. L. Stephens	Spectrum assigned.
C ₂ H ₄ AgI*	C ₂ H ₄ ...Ag-I	S. L. Stephens	Spectrum assigned.
C ₂ H ₄ AuI*	C ₂ H ₄ ...Au-I	S. L. Stephens, M. Sprawling, D. P. Zaleski	Spectra of isotopologues assigned, manuscript in preparation.
C ₂ H ₄ CuF*	C ₂ H ₄ ...Cu-F	S. L. Stephens	Spectrum assigned.
C ₂ H ₄ CuI*	C ₂ H ₄ ...Cu-I	S. L. Stephens	Spectrum assigned.
C ₂ H ₅ N ₃ O ₂ *	CH ₄ N ₂ O...HNCO (urea-isocyanic acid complex)	J.C. Mullaney, C. Medcraft	Published: <i>Phys. Chem. Chem. Phys.</i> 19 , 25080 (2017)
C ₃ H ₂ F ₃ I*	C ₂ H ₂ ...ICF ₃	S. L. Stephens	Manuscript in preparation

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C ₃ H ₃ N ₃ O ₂	4(5)-nitroimidazole	E. Gougoula	Spectrum assigned
C ₄ H ₅ N ₃ O ₂	2-methyl-4(5)-nitroimidazole	E. Gougoula	Spectrum assigned
C ₃ H ₉ AgNI*	(CH ₃) ₃ N...Ag-I	D. Bittner, S. L. Stephens	Spectrum assigned. Manuscript in preparation
C ₃ H ₉ F ₆ NS*	(CH ₃) ₃ N...SF ₆	D. Bittner	Spectrum assigned
C ₄ H ₅ N ₃	2-aminopyrimidine	E. Gougoula	Spectrum assigned
C ₄ H ₆ ArN ₂	2-methylimidazole-argon complex	C. Medcraft, J. Heitkämper	Spectra of isotopologues assigned
C ₄ H ₆ N ₂	2-methylimidazole	C. Medcraft, J. Heitkämper	Spectrum assigned.
C ₄ H ₈ N ₂ O	2-methylimidazole-water complex	C. Medcraft, J. Heitkämper	Spectra of isotopologues assigned
C ₄ H ₈ N ₄ O	CH ₄ N ₂ O...C ₃ H ₄ N ₂ (urea-imidazole complex)	S. Blanco (Valladolid), J.C. Mullaney, C. Medcraft,	Spectrum assigned, isotopic work.
C ₆ H ₆ N ₂ O ₂	Urocanic acid (4-imidazoleacrylic acid)	G. Cooper, C. Medcraft, E. Gougoula	Spectra of isotopologues and conformers assigned, manuscript in preparation
C ₆ H ₈ N ₂ O ₃	Urocanic Acid-water complex	G. Cooper, C. Medcraft, E. Gougoula	Spectrum assigned
C ₆ H ₁₀ O ₃	Tetrahydrofuran-acetic acid complex	D.P. Zaleski, A. King	Spectrum assigned, isotopic work in progress.
AgH ₂ IO*	H ₂ O...Ag-I	C. Medcraft, E. Gougoula, J.C. Mullaney, S. Blanco (Valladolid)	Published: <i>J. Chem. Phys.</i> 147 , 234308 (2017)
AgH ₃ IN*	H ₃ N...Ag-I	D. Bittner.	Published: <i>J. Chem. Phys.</i> 147 , 234308 (2017)
AuBrKr	Kr...Au-Br	J. Thomas	Further isotopic species. (With M.C.L. Gerry, Vancouver).
AuH ₃ IN*	H ₃ N...Au-I	D. Bittner, S.L. Stephens	Spectrum assigned.
FIPt*	FPI	D. Bittner, G. Cooper, C. Medcraft	Spectra of isotopologues assigned.

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<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS*</u>
C₄H₇N (<i>n</i> -C ₃ H ₇ CN)	<i>n</i> -propyl cyanide ground state + several vibrational states of both <i>anti</i> and <i>gauche</i> conformers	D. Liu ¹ , A. Walters ¹ , N. Wehres ² , H. S. P. Müller ² <i>et al</i>	37–505 GHz. Experiments completed Most assignments completed for 5 lowest vibrational states (including ground state) for each conformer.

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<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
CH ₃ O ⁺ (H ₂ COH ⁺)	Protonated formaldehyde	Susanna Widicus Weaver Kevin Roenitz Luyao Zou	Submm spectral acquisition in progress
CH ₅ NO (HOCH ₂ NH ₂)	aminomethanol	Susanna Widicus Weaver Hayley Bunn Brian Hays ¹ Morgan McCabe Samuel Zinga	mm spectrum acquired, assignment in progress
EXPERIMENTAL	Microwave-Millimeterwave Double Resonance	Susanna Widicus Weaver Steven Shipman ² Kevin Roenitz Brian Hays ¹ Carson Powers Morgan McCabe Houston Smith	Manuscript submitted to <i>JPCA</i>

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<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
CHN (HCN)	hydrogen cyanide	F. Rohart ¹	lineshape analysis in progress
CHN (H ¹⁵ NC; H ¹⁵ N ¹³ C D ¹⁵ NC; D ¹⁵ N ¹³ C H ¹⁴ N ¹³ C; D ¹⁴ N ¹³ C)	hydrogen isocyanide	S. Bailleux ¹ , P. Kania ²³ , G. Wlodarczak ¹	spectrum assigned (mm+THz); manuscript in preparation
CH ₂ (CHD, CD ₂)	methylene radical	S. Bailleux ¹ , H. Ozeki ²⁴	spectrum assigned (THz); manuscript in preparation
CH ₃ O ₃ Re (CH ₃ ReO ₃)	Methyltrioxyrhenium	P. Asselin, ²⁰ Y. Berger, ²⁰ T. R. Huet, ¹ L. Margulès, ¹ R. Motiyenko, ¹ R. J. Hendricks, ²¹ M. R. Tarbutt, ²¹ S. K. Tokunaga, ²² B. Darquié ²²	<i>Phys. Chem. Chem. Phys.</i> , 19 (2017) 4576
CH ₄ O (CHD ₂ OH)	methanol	L. Coudert ⁷ , L. Margulès ¹ , R. A. Motiyenko ¹	MM+SMM+THz spectra; internal rotation analysis in progress
C ₂ HF ₃ O (HCOCF ₃)	trifluoroacetaldehyde	C. Bermudez ¹ R. A. Motiyenko ¹ L. Margulès ¹ , C. Cabezas ¹¹ J.-C. Guillemin ²	MM spectra internal rotation manuscript in preparation
C ₂ H ₃ NO ₂ (H ₃ ONCO)	methoxy-isocyanate	A. Pienkina ¹ L. Margulès ¹ , R. A. Motiyenko ¹ J.-C. Guillemin ² J. Cernicharo ⁵	MM spectra manuscript in preparation

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C ₂ H ₄ O (CH ₂ DCHO)	acetaldehyde	L. Margulès ¹ , R. A. Motiyenko ¹ J.-C. Guillemin ² L. Coudert ⁷	MM+SMM spectra; internal rotation analysis in progress
C ₂ H ₄ S (CH ₃ CHS)	thioacetaldehyde	L. Margulès ¹ , R. A. Motiyenko ¹ J.-C. Guillemin ² A. Belloche ¹⁰ B. Mc Guirre ⁹ A. Remijan ⁹	MM+SMM spectra; internal rotation manuscript in preparation
C ₂ H ₅ N (CH ₃ CHNH)	ethaneimine	L. Margulès ¹ , R. A. Motiyenko ¹ J.-C. Guillemin ² B. Mc Guirre ⁹ A. Remijan ⁹	MM spectra internal rotation manuscript in preparation
C ₂ H ₆ O ₂ (CH ₃ OCH ₂ OH)	methoxy-methanol	R. A. Motiyenko ¹ L. Margulès ¹ , J.-C. Guillemin ² D. Despois ⁴	MM spectra internal rotation <i>PCCP</i> , 20(8), 5509, 2018
C ₃ N ₂ H ₂ (NCCH ₂ CN) (NCCH ₂ NC)	malononitrile iso-cyanomethane	L. Margulès ¹ , R. A. Motiyenko ¹ J.-C. Guillemin ²	MM+SMM spectra manuscript in preparation
C ₃ H ₃ NO ₂ (CH ₃ CONCO)	acetyl-isocyanate	L. Margulès ¹ , R. A. Motiyenko ¹ J.-C. Guillemin ² I. Kleiner ⁸ V. Ilyushin ³ J. Cernicharo ⁵	MM spectra internal rotation analysis in progress
C ₃ H ₄ N ₂ (CH ₃ N-CH-CN)	methylimino- acetonitrile	R. A. Motiyenko ¹ L. Margulès ¹ , J.-C. Guillemin ²	MM spectra internal rotation analysis in progress
C ₃ H ₄ O ₂ (CH ₃ C(O)CHO)	Methyl-glyoxal	S. Bteich, ¹ M. Goubet, ¹ R. Motiyenko, ¹ L. Margulès, ¹ T. R. Huet ¹	<i>J. Mol. Spectrosc.</i> <i>in press</i> , DOI: 10.1016/j.jms.2017.12.007
C ₃ H ₅ N (¹³ C-CH ₃ CH ₂ CN)	ethyl cyanide	J. Pearson ¹² B. Drouin ¹² Y. ShanShan ¹² L. Margulès ¹ , R. A. Motiyenko ¹ J.-C. Guillemin ²	MM+SMM+THz spectra exc. states analysis in progress

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C ₃ H ₅ N (CH ₃ CH ₂ NC)	ethyl isocyanide	L. Margulès ¹ , R. A. Motiyenko ¹ J.-C. Guillemin ²	MM+SMM spectra <i>A&A</i> , 610, A44, 2018
C ₃ H ₆ O ₂ (C ₂ H ₅ COOH)	propionic acid	A. Kutsenko ³ V. Ilyushin ³ R. A. Motiyenko ¹ L. Margulès ¹ , J.L. Alonso ⁶ J. Cernicharo ⁵	MM+SMM spectra; internal rotation manuscript in preparation
C ₃ H ₆ O ₃ (C ₃ H ₄ O ₂ + H ₂ O)	Methylglyoxal hydrate	S. Bteich ¹ , M. Goubet ¹ , T.R. Huet ¹	Experiments Completed Analyses in progress
C ₃ H ₇ N (CH ₃ CH ₂ CHNH)	propaneimine	L. Margulès ¹ , R. A. Motiyenko ¹ J.-C. Guillemin ² B. Mc Guirre ⁹ A. Remijan ⁹	MM+SMM spectra manuscript in preparation
C ₃ H ₇ NO (CH ₃ CH ₂ CONH ₂)	propionamide	V. Ilyushin ³ E. Alekseev ³ R. A. Motiyenko ¹ L. Margulès ¹ P. Drean ¹	MW+MM+SMM spectra; internal rotation analysis in progress
C ₄ H ₃ NO (HOCH ₂ -CC-CN)	4-hydroxy-2-butynenitrile	R. A. Motiyenko ¹ L. Margulès ¹ , J.-C. Guillemin ²	MM+SMM spectra; internal rotation <i>J. Phys. Chem. A</i> , in press
C ₄ H ₆ O (CH ₃ COCHCH ₂)	methyl vinyl ketone	O. Zakharenko ¹⁴ R. A. Motiyenko ¹ T. H. Huet ¹	MM+SMM spectra; internal rotation <i>JPCA</i> 121, 6420–6428, 2017
C ₅ H ₈ N ₂	2-cyanopyrrolidine	R. A. Motiyenko ¹ L. Margulès ¹ , J.-C. Guillemin ² S. Samdal ¹³	MM spectra analysis in progress
C ₇ H ₇ NO ₂	2-Nitrotoluene 3-Nitrotoluene 4-Nitrotoluene	A. Roucou ¹⁵ , I. Kleiner ⁸ , M. Goubet ¹ S. Bteich ¹ , G. Mouret ¹⁵ , F. Hindle ¹⁵ , R. Bocquet ¹⁵ , W.L. Meerts ¹⁶ , A. Cuisset ¹⁵	Experiments Completed Analyses in progress 3-NT published: <i>Chem. Phys. Chem.</i> DOI: 10.1002/cphc.201701266
C ₁₀ H ₈ O	1-naphthol 2-naphthol	O. Pirali ⁷ , M. Goubet ¹	Experiments Completed Analyses in progress

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C ₁₀ H ₁₄ O	Myrtenal	M. Chrayteh, ¹ P. Dréan, ¹ T. R. Huet ¹	<i>J. Mol. Spectrosc.</i> 336 (2017) 22–28
C ₁₀ H ₁₄ O	Nopinone	E. M. Neeman, ¹ J. R. Aviles Moreno, ¹ T. R. Huet ¹	<i>Phys. Chem. Chem. Phys.</i> , 19 (2017) 13819
C ₁₀ H ₁₆	α-pinene	E. M. Neeman, ¹ J. R. Aviles Moreno, ^{1,17} T. R. Huet ¹	<i>J. Chem. Phys.</i> 147 (2017) 214305
C ₁₀ H ₁₆	β-pinene	E. M. Neeman, ¹ J. R. Aviles Moreno, ^{1,2} T. R. Huet ¹	<i>Phys. Chem. Chem. Phys.</i> , 19 (2017) 13819
C ₁₀ H ₁₆ O	1-adamantanol	O. Pirali ⁷ , M. Goubet ¹ , L. Coudert ⁷	Experiments Completed Analyses in progress
C ₁₀ H ₁₆ O	Limonene oxyde	D. Loru ¹⁸ , M. M. Quesada-Moreno, ¹⁹ J. R. Aviles-Moreno, ¹ N. Jarman, ¹⁸ T. R. Huet, ¹ J.J. Lopez-Gonzalez, ¹⁹ M. E. Sanz ¹⁸	<i>Chem. Phys. Chem.</i> 18 (2017) 274
C ₁₁ H ₉ N	2-phenylpyridine 3-phenylpyridine	O. Pirali ⁷ , M. Goubet ¹ , L. Coudert ⁷	Experiments Completed Analyses in progress
¹⁴ NO ⁺ ¹⁵ NO ⁺	nitrosylium ion	S. Bailleux ¹ E. Alekseev ³ J. Cernicharo ⁵	MM+SMM spectra v=0,1,2 states assigned manuscript in preparation
NS ⁺	Nitrogen sulfide ion	S. Bailleux ¹ L. Margulès ¹ , J. Cernicharo ⁵	MM+SMM spectra astrophysical detection <i>Ap. J. Lett.</i> , 853:L22 2018

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<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C ₈ H ₇ F ₃ O	1-phenyl-2,2,2-trifluoroethanol	C. Carlson J. Thomas N. Seifert, F. Xie	Monomer and ¹³ C assigned; manuscript submitted to JMS "Chiral Molecules" SI.
C ₈ H ₉ F ₃ O ₂ (C ₈ F ₃ H ₇ O-H ₂ O)	1-phenyl-2,2,2-trifluoroethanol-water	C Carlson N. Seifert	Monohydrate assigned; manuscript in preparation.
C ₁₆ H ₁₄ F ₆ O ₂ (C ₈ F ₃ H ₇ O) ₂	1-phenyl-2,2,2-Trifluoroethanol dimer	C. Carlson N. Seifert	Assignment in progress.
C ₅ H ₄ F ₆ O ₄ (C ₄ F ₆ H ₂ O ₂ -CH ₂ O ₂)	3,3,3-trifluoro-2-(trifluoro methyl) propanoic acid-formic acid complex	J. Thomas ^{1,2}	Manuscript in preparation.
C ₈ H ₈ O ₃	m-anisic acid (3-methoxybenzoic acid)	A. Macario Farto ³ J. Thomas	One conformer assigned; others in progress.
C ₉ H ₁₀ O ₅ (C ₈ H ₈ O ₃ -CH ₂ O ₂)	m-anisic acid-formic acid complex	A. Macario Farto ³ J. Thomas	Spectra assigned.
C ₉ H ₁₀ O ₅ C ₈ H ₈ O ₃ -CH ₂ O ₂	o-anisic acid (2-methoxybenzoic acid)-formic acid complex	A. Macario Farto ³ J. Thomas N. Seifert	Several chirped spectra recorded; conformers identified theoretically; assignment in progress.
C ₄ H ₇ NO C ₄ H ₉ NO ₂ (C ₄ H ₅ N-(H ₂ O) _{1,2})	Pyrrrole-(water) _{1,2}	B. Wu ¹ J. Thomas	¹³ C of Py-1W assigned; conformational search for Py-2W completed and assignment in progress.
C ₄ H ₆ F ₆ O ₂ C ₆ H ₉ F ₉ O ₃ C ₈ H ₁₂ F ₁₂ O ₄ ((C ₂ F ₃ H ₃ O) ₂₋₄)	(Trifluoroethanol) ₂₋₄	J. Thomas ¹ N. Seifert	(TFE) ₃ in ACIE, 2017, 56, 6289; assignment of higher clusters in progress.
C ₆ H ₁₅ F ₃ O ₃ C ₈ H ₂₀ F ₄ O ₄ ((C ₂ H ₅ FO) _{3,4})	(2-fluoroethanol) _{3,4}	J. Thomas ¹ N. Seifert	Tetramer and two new trimers assigned; manuscript in preparation.
C ₁₀ H ₁₆ O	Perillyl alcohol	F. Xie ¹ N. Seifert J. Thomas	Many monomeric conformers assigned; manuscript in preparation.
C ₁₀ H ₁₈ O ₂ (C ₁₀ H ₁₆ O-H ₂ O)	Perillyl alcohol-water	F. Xie N. Seifert	Monohydrate assignment in progress.

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C ₅ H ₈ O ₃	Tetrahydro-2-furoic acid	F. Xie, Y. Li ¹ X. Ng, J. Thomas N. Seifert	Several conformers and ¹³ C assigned; manuscript in preparation
C ₁₀ H ₁₆ O ₆ (C ₅ H ₈ O ₃) ₂	Tetrahydro-2-furoic acid -dimer	F. Xie N. Seifert	Dimer assigned;
C ₅ H ₁₀ O ₄ (C ₅ H ₈ O ₃ -H ₂ O)	Tetrahydro-2-furoic acid -water	F. Xie N. Seifert	Monohydrate in progress.
C ₃ H ₂ F ₆ Ne C ₃ H ₂ ArF ₆ (C ₃ H ₂ F ₆ -Ne, Ar)	1,1,1,3,3,3- hexafluoro -2-propanol (HFIP) -Ne, Ar	S. Oswald ^{1,5} N. Seifert	Spectra assigned; manuscript in preparation.
C ₃ H ₂ F ₆ N ₂ (C ₃ H ₂ F ₆ -N ₂)	HFIP-N ₂	S. Oswald ^{1,5} N. Seifert	Spectra assigned. ¹⁴ N hfs analysis in progress.
C ₆ H ₄ F ₁₂ C ₉ H ₆ F ₁₈ ((C ₃ H ₂ F ₆) _{2,3})	HFIP (1,1,1,3,3,3- hexafluoro-2-propanol) dimer and trimer	S. Oswald ^{1,5} N. Seifert F. Xie	Spectra assigned; manuscript in preparation.
C ₆ H ₁₆ O ₆ ((C ₃ H ₈ O ₃) ₂)	Glycerol dimer (propane-1,2,3-triol) ₂	N. Seifert ¹ J. Thomas	Dimer assigned.
C ₃ H ₁₀ O ₄ C ₃ H ₁₂ O ₅ C ₃ H ₁₄ O ₆ (C ₃ H ₈ O ₃ -(H ₂ O) _{1,2,3})	Glycerol-(H ₂ O) _{1,2,3} clusters	J. Thomas	Assignment in progress.
C ₂ H ₆ F ₃ NO (C ₂ F ₃ H ₃ O-NH ₃)	Trifluoroethanol -ammonia	C. Carlson ¹ J. Thomas Y. Yang	Manuscript near completion.
C ₈ H ₁₁ NO ₃ (C ₈ H ₈ O ₃ -NH ₃)	Methyl salicylate -ammonia	J. Thomas ¹	New conformers predicted; chirped and cavity assignments in progress.
C ₂ H ₇ FO ₂ C ₂ H ₉ FO ₃ C ₂ H ₁₁ FO ₄ (C ₂ FH ₅ O-(H ₂ O) ₁₋₃)	2-fluoroethanol -(water) _n	W. Huang J. Thomas	Extensive theoretical calculations for n up to 3; broadband spectra recorded; assignment in progress.
C ₄ H ₈ O ₄ (C ₄ H ₆ O ₃ -H ₂ O)	Methyl glycidate -water	J. Gall, J. Thomas F. Xie, Z. Wang A. Perera, J. Cheramy C. Merten J. Thomas	PCCP 2017, 19, 29508. VCD and ROA, CPC, 2018, in press.
C ₄ H ₁₀ O ₅ C ₄ H ₁₂ O ₆ (C ₄ H ₆ O ₃ -(H ₂ O) ₂₋₃)	Methyl glycidate -(water) ₂₋₃	J. Thomas, Z. Wang	Theoretical calculation with n up to 3; broadband spectra recorded and assignment of others in progress.

<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
C ₄ H ₉ NO ₃ (C ₄ H ₆ O ₃ -NH ₃)	Methyl glycidate -ammonia	J. Thomas	Broadband spectra recorded and assigned; hfs analysis with cavity measurement in progress.
C ₈ H ₁₆ O ₆ (C ₄ H ₈ O ₃ -C ₄ H ₈ O ₃)	Methyl lactate dimers	J. Thomas N. Seifert	Extensive ab initio conformational search completed; broadband spectra recorded; assignment in progress.
C ₃ H ₁₂ O ₄ C ₃ H ₁₄ O ₅ (C ₃ H ₆ O-(H ₂ O) _{3,4})	Propylene oxide -(water) _n	J. Thomas Z. Su	Extensive theoretical calculations for n up to 4; broadband and cavity spectra recorded; n=3 assigned based on broadband data; further cavity measurement and n=4 assignment in progress.
C ₃ H ₅ FO ₂	α-Fluoropropionic acid	Y. Yang J. Thomas	New measurements and theoretical study
C ₃ H ₈ O ₂ (H ₂ O-C ₃ H ₆ O)	Acetone-water	J. Gao ¹ J. Thomas	Spectra assigned, manuscript in preparation.
C ₉ H ₁₈ O ₄ (C ₆ H ₁₂ O ₃ -C ₃ H ₆ O)	Solketal-propylene oxide complex	L. Evangelisti, J. Thomas, C. West ⁴	Spectra assigned; manuscript in preparation.
CH ₆ O (CH ₄ -H ₂ O)	Methane-water	X. Liu	IR spectrum at H ₂ O v ₂ band measured; assignment in progress.
H ₃ NNe ArH ₃ N (Ne, Ar-NH ₃)	Ammonia-neon, -argon	X. Liu	IR spectrum at NH ₃ v ₄ band assigned.
C ₃ H ₈ O ₂ (C ₃ H ₆ O-H ₂ O)	Propylene oxide -water	J. Thomas X. Liu R. Patel	Rich IR spectrum at H ₂ O v ₂ band measured; assignment in progress.
CH ₃ NO (HCONH ₂)	Formamide Formamide dimer	F. Sunahori	High-res. IR Spectra obtained; monomer assigned
C ₂ H ₆ N ₂ O ((HCONH ₂) ₂)	Formamide dimer	F. Sunahori	High-res. IR Spectra obtained; assignment of the dimer in progress.
C ₄ H ₈ O ₃	Methyl lactate	F. Sunahori N. Borho	High-res. IR spectrum obtained; assignment in slow progress.

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² In collaboration with Prof. W. Lin, Department of Chemistry, University of Texas Rio Grande Valley, Brownsville, TX 78520.

³ In collaboration with Prof. S. Blanco and Prof. J. C. López, Chemistry, University of Valladolid.

⁴ In collaboration with Prof. W. Caminati, University of Bologna, Dr. D. Patterson, Harvard University, Prof. B. H. Pate, University of Virginia.

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Formula of Progress	Name of Compound	Name of Investigator	Present Stage
IMg	Magnesium Iodide	Zilchenstein & Ziurys	JMS, 339, 1
HSZn, DSZn	Zinc Hydrosulfide	Bucchino et al.	JCP, 147, 154313
C ₂ Al	Aluminum Dicarbide	Halfen & Ziurys	PCCP, in press
F ₂ OS	Thionyl Fluoride	Keogh, Halfen, Ziurys	JMS, submitted
KO preparation	Potassium Oxide	Burton et al.	Manuscript in
BrMg	Magnesium Bromide	Burton et al.	Spectrum Assigned
FeH	Iron Hydride	Bucchino & Ziurys	Spectrum assigned
C ₂ Sc (Sc ¹³ C ₂ , Sc ¹³ C ¹² C)	Scandium Dicarbide-13	Burton et al.	Spectrum Assigned

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<u>FORMULA</u>	<u>NAME OF COMPOUND</u>	<u>NAME OF INVESTIGATOR</u>	<u>PRESENT STAGE OF PROGRESS</u>
$C_7H_8O_2$ ($CH_3OC_6H_4OH$)	Guaiacol	Timothy Zwier ¹	Experiments Completed: Assignments Completed including ¹³ C
C_9H_9N ($C_6H_5CH_2CH_2CN$)	3-phenylpropionitrile	Timothy Zwier ¹	Experiments Completed: Assignments Completed
$C_8H_{10}O_3$ ($(CH_3O)_2C_6H_4OH$)	2,6-dimethoxyphenol	Timothy Zwier ¹	Experiments Completed
$C_9H_{10}O_2$ ($CH_3OC_6H_4OHCHCH_2$)	2-Methoxy-4-vinylphenol	Timothy Zwier ¹ , Emilio Cocinero ²	Experiments Completed: Assignments Completed
$C_4H_3O_2$ (OC_4H_3O)	2-furanyloxy radical	Timothy Zwier ¹ , John Stanton ³	Experiments Completed: Assignments Completed
$C_6H_5O_2$ (OC_6H_5O)	Hydroxyphenoxy radical	Timothy Zwier ¹ , John Stanton ³	Experiments Completed Preliminary Assignments
C_6H_5O	Phenoxy radical	Timothy Zwier ¹ , John Stanton ³	Experiments Completed Preliminary Assignments

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$^{14}\text{NO}^+$	150	$\text{C}_{10}\text{H}_{12}\text{N}_2\text{O}$	15, 85
$^{15}\text{NO}^+$	150	$\text{C}_{10}\text{H}_{12}\text{O}$	139
$^{15}\text{NO}_2$	22	$\text{C}_{10}\text{H}_{12}\text{O}_2$	12, 28
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AgClDH	45, 112	$\text{C}_{10}\text{H}_{12}\text{O}_3$	15, 85
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AuBrKr	144	$\text{C}_{10}\text{H}_{16}\text{O}_6$	60, 153
AuClH_2	45, 111	$\text{C}_{10}\text{H}_{18}\text{O}$	129, 135
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AuHO	116	$\text{C}_{10}\text{H}_{18}\text{O}_4$	61
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EXPERIMENTAL represents technique developments in Microwave Spectroscopy.