Dielectric Properties of SbSI in the Temperature Range of 292-475 K

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The antimony sulfoiodide (SbSI) is the most outstanding representative of ferroelectric-semiconductors that show interesting physical properties (optical, photoconducting, ferroelectric, piezoelectric, etc.) and have drawn the attention of numerous investigators. Recently, SbSI has been used to construct nanosensors of humidity [1-3] as well as photonic crystals [4]. It seems very promising to investigate the sensing and photonic properties of such devices near phase transition points. This work presents results of measurements of impedance and ferroelectric histeresis loops in single crystals of SbSI grown from the vapour phase. The measurements were performed in the temperature range of 292-475 K. In contrary to the recently published data [5] of the SbSI crystals grown by the Bridgman-Stockbarger technique no evidence of antiferroelectric phase transition near 410 K has been observed. The methodology of the impedance measurements is discussed, too.

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