SEMINARIUM Z MAGNETYZMU I NADPRZEWODNICTWA

Uprzejmie zawiadamiamy, że w **środę**

14 kwietnia 2021 r., o godz.10:00

odbędzie się seminarium **on-line (link podany jest na stronie IF PAN)**,

na którym

Prof. dr hab. Jerzy Krupka

Instytut Mikroelektroniki i Optoelektroniki Politechniki Warszawskiej

wygłosi referat na temat:

“Measurements of conductivity and penetration depth of superconductors in the microwave frequency band”

It has been shown that the correct method of describing the electromagnetic properties of superconductors in the microwave frequency band is the "two-fluid" conductivity model. This parameter, when inserted into the formula for the complex permittivity, leads to the appearance of a negative value of the real part of the complex permittivity. In this approach, the analysis of microwave structures (including measurement resonators) containing superconductors reduces to the analysis of classical boundary problems of electrodynamics. The wave impedance and the surface resistance commonly used in the description of the electrical properties of superconductors are secondary parameters. The latter parameter, in general, depends not only on the properties of the superconductor, but also on the parameters of the substrate on which the superconductor is deposited. For superconducting layers thinner than the penetration depth, the absolute value of the penetration depth of the YBCO layers was measured in the temperature range from 10 K to 300 K. It was shown that the YBCO conductivity component related to normal conductivity is slightly dependent on the temperature in the range from cryogenic to room temperatures. The complex conductivity YBCO was measured as a function of the constant magnetic field in the range up to 7 T. The limitations of the perturbation method, commonly used in the analysis of superconductor measurement systems, were presented.

Serdecznie zapraszamy

Roman Puźniak
Andrzej Szewczyk
Henryk Szymczak