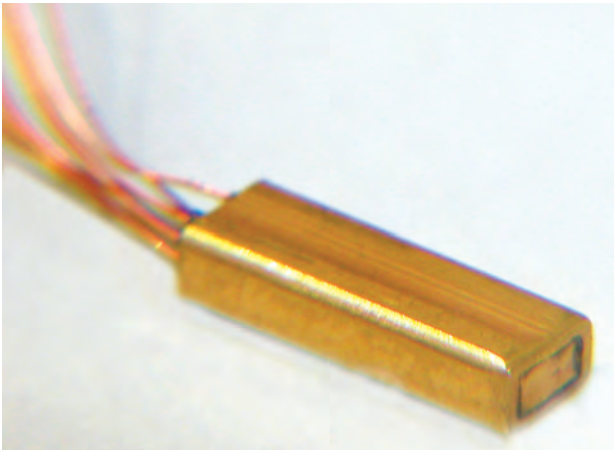


DUAL FUNCTION SENSORS (DFS)

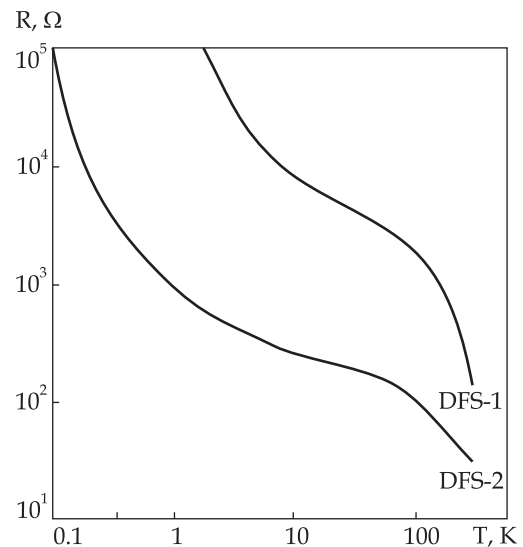


Areas of Application

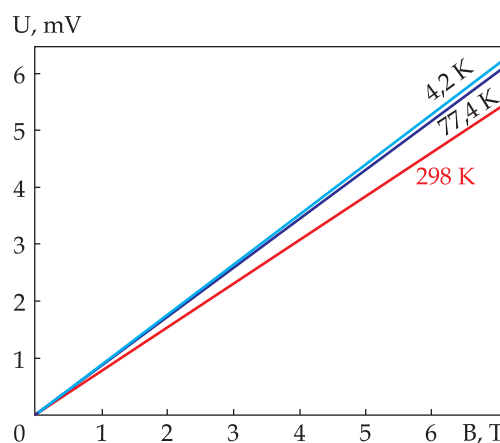
The DFS can be used for local simultaneous measurements of temperature and magnetic field in superconducting magnet systems at research laboratories and universities. The DFS can improve the accuracy of temperature measurement in the presence of magnetic fields using the adjustment method (if magnetic field and thermometer sensitivity to it are known)

Specification

The DFS consists of resistance thermometer and Hall-effect magnetic field sensor. These sensors are incorporated in a 3.5 mm wide, 2.2 mm high, and 10.1 mm long sheath. The DFS has 8 copper contact leads: 4 leads for the resistance thermometer and 4 ones for the Hall-effect magnetic field sensor. The DFSs operate within the temperature range from 0.1 to 400 K and at magnetic fields of up to 15 T



Resistance vs temperature curves for DFS-1 and DFS-2 thermometers



Voltage vs magnetic field curves for DFS Hall-effect magnetic field sensor at a current of 0.5 mA

Advantages

There are no analogs in Ukraine and in the world. The devices are notable for wide temperature and magnetic field operating range; monotonic response over a wide temperature and magnetic field range; high sensitivity; small temperature reading errors for operation in magnetic fields; and high radiation tolerance

Stage of Development.

Suggestions for Commercialization

IRL6, TRL6

Manufactured upon request

IPR Protection

IPR1, IPR2

Contact Information

Anna S. Stanetska, V.Ye. Lashkaryov Institute of Semiconductor Physics of the NAS of Ukraine; +38 044 525 60 43, +38 099 292 66 60; e-mail: stanetska_anna@ukr.net