

An experimental technique for the study of magnetization kinetics in the vicinity of phase transitions

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One of the types of extreme state of solids is phase instability near the point of phase transition (PT). Among the huge variety of solidstate materials with PTs, magnets can be distinguished, in which magnetic PT often co-exists and interacts with structural PT. The study of materials under critical conditions in the vicinity of PT is hampered by the lack of standard methods for studying the thermodynamic parameters of a substance *in situ*. The purpose of this work is to develop an experimental method for studying the kinetics of changes in the magnetic and thermodynamic parameters of solid-state magnetic materials with PT under pulsed action by a magnetic field. The installation includes a block for generating a rectangular pulse of a magnetic field up to 1 T of variable duration from 1 second to 10 microseconds, and high-speed sensors of magnetic moment and temperature, as well as a thermostatic and control unit. The installation was tested and calibrated during the study of Gd and Heusler alloys.

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