

Investigation of magnetocaloric effect in the alumina ceramics

R. Tarasenko,^{1,2} V. Tkáč,¹ A. Orendáčová,¹ M. Orendáč,¹ and A. Feher¹

¹*Centre of Low Temperature Physics of P.J. Šafárik University and SAS,
Park Angelinum 9, SK-040 01 Košice, Slovak Republic*

²*Faculty of Mathematics and Physics,
Department of Condensed Matter Physics,
Charles University, Ke Karlovu 5,
CZ-12116 Prague 2, Czech Republic*

Investigation of the magnetocaloric effect (MCE) in the commercial alumina ceramics was realized within a program focused at a design of experimental holder for MCE measurement. Previous magnetic studies of the material indicated the presence of ions with spin 5/2 with a concentration of 2000 ppm [1]. The study of MCE was performed in the temperature range from 90 mK to 1 K in magnetic fields up to 2 T in a commercial dilution refrigerator TLE 200. The normal MCE was observed which is in qualitative agreement with the theoretical calculations. The potential use of alumina ceramics as an experimental holder for MCE will be discussed in the paper.

References:

[1] R. Tarasenko et al., Acta Phys. Pol. A 118, 1067 (2010).

This work has been supported by project APVV LPP-0202-09.