



Charles University in Prague

Expression of interest for cooperation in FP7 project/s

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Faculty/institute: Faculty of Mathematics and Physics

Department: Department of Low Temperature Physics

Collaboration form: Project partner

Size of the research group: 6

Specific programme: Cooperation - Nano-sciences, Nano-technologies, Materials and new Production Technologies

Activity area:

NMP-2007-2.1-2: Nanostructured coatings and thin films

NMP-2007-2.1-3: Characterisation of nanostructured materials

NMP-2007-2.2-2: Nanostructured materials with tailored magnetic properties

NMP-2007-2.5-1: Novel materials tailored for extreme conditions and environments

Cooperation interest:

Studying size-dependent and interface phenomena of materials (suitable for medical and industrial applications) by physical methods.

Expertise offered for the FP7 project:

NMP-2007-2.1-2, NMP-2007-2.1-3, NMP-2007-2.2-2, NMP-2007-2.5-1: Characterization of various type materials and samples (thin films, powders of micro- and nanosized particles, single crystals crystals) by local physical methods, mainly NMR (NMR in magnetics and other solids, high resolution NMR). Dependence on temperature and external magnetic field.

Number of Ph.D. students: 3

Major international publications:

Novák, H. Štěpánková, J. Englich et al., NMR in magnetite below and around Verwey transition, Phys. Rev. B61 (2000) 1256 (IF 3.06)

H. Štěpánková, P. Novák, J. Englich, et al., Anisotropy in the hyperfine field on ^{57}Fe in pure and substituted yttrium iron garnet, Hyperfine Interactions 131 (2000) 3 (IF0.47)

E. Gamaliy, H.Štěpánková, J. Englich, et al., NMR of ^{57}Fe above the Verwey transition in Al substituted magnetite, J. Magn. Magn. Mater. 242 (2002) 732 (IF 1.04)



H. Štěpánková, T. Okuda, E. Gamaliy, et al., Nuclear magnetic resonance of ^{57}Fe in bismuth-yttrium ion garnets, *Phys. Stat. Sol. A* 196 (2003) 121 (IF 0.95)

V. Chlan, H. Štěpánková, V. Procházka, et al., Antisite defects in lutetium and yttrium iron garnets prepared by liquid mix technique, *J. Magn. Magn. Mater.* 290-291 (2005) 993 (IF 0.99)

V. Chlan, P. Novák, H. Štěpánková, et al., Hyperfine Interactions in Lutetium Iron Garnet, *J. Appl. Phys.* 99 (2006) 08M903 1-3

Previous participation in international research projects: none

Available research infrastructure: hyperfine/ nuclear methods in physics of condensed matter

Major research interest/focus: The domain of the group is fundamental research in the field of physics of condensed matter directed to the study of inorganic and organic materials, their structure and dynamics. Attention is paid mainly to microscopic approaches and corresponding local methods as NMR.

Www pages of the research group: <http://physics.mff.cuni.cz/kfnt/index.htm>

Existing international collaboration partners: none

Notes: