

Adam Mickiewicz University (AMU)

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General

The NanoBioMedical Centre (NBMC), participating in NANOMAG, is a multidisciplinary unit focused on the research and education on both master and doctoral levels. The Centre comprises 8 Departments from the Faculty of Physics at Adam Mickiewicz University in Poznan (Poland): Macromolecular Physics, Molecular Biophysics, Crystal Physics, Mezoskopic Physics, Medical Physics, Computational Physics, Radiospectroscopy Physics and Dielectric Physics. The main goal of NBMC interdisciplinary research activity is to stimulate the development of nanotechnology and its application in material science, biology and medicine. In particular it is focused in Physics and Chemistry of Nanomaterials (quantum dots, nanowires, carbon nanotubes, 2-D and 3-D systems, fabrication of nanostructures and nanodevices), and with various applications of nanomaterials in Molecular Biology (Cell Manipulation and Tissue Engineering), in Medicine (Neuroscience and Therapy), in Biomaterials and Pharmacology (Biosensors and Nanovaccines). The group involved in NANOMAG consists of 15 academic staff and scientists and has participated/coordinated eight EU funded projects.

Infrastructure

The available facilities include NMR, MRI, SAXS, WAXS, FTIR, Dielectric Spectroscopy and rheology and toxicology labs.

The role of AMU team in the consortium will be to train people in the use of the above characterization techniques (prominently in vitro application of functionalized magnetic nanoparticles) and to exchange expertise and contribute to the (i) functionalization and characterization of magnetic nanoparticles for biomedical applications and (ii) laboratory testing of magnetic hyperthermia and relaxivity efficiency for MRI.

Key Scientists

Prof. Stefan Jurga (Head of NBMC at AMU, 6 WP Leader) NMR, dielectric, rheology and FTIR techniques to study structure and dynamics of polymers and nano-hybrid, proton deuterium, carbon C-13 NMR relaxation and NMR diffusion, *Prof. Adam Patkowski* Fluorescence Correlation Spectroscopy to study self and tracer diffusion of nano-particles in crowded environment of a complex nano-structure, *Prof. Magorzata Jilwipska-Bartkowiak* Physics of Dielectric, Phase Transitions in Liquids and Liquids Mixtures, Phase Transitions in Confined Systems, *Dr. Grzegorz Nowaczyk* molecular dynamics and viscoelastic properties of polymers, *Dr. Mariusz Jancelewicz* molecular dynamics and structure of complex polymer systems, *PhD Jacek Jencyk* block copolymers as nano-carriers, *1PhD student M.Sc Joanna Morawska*. Expertise: in research project management