

"Jožef Stefan" Institute (JSI)

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General

The "Jožef Stefan" Institute (JSI) from Ljubljana is the leading Slovenian scientific research Institute, covering a broad spectrum of basic and applied research. The staff of 900 scientists specializes in natural sciences, life sciences and engineering. The main subjects concern research in basic and applied physics, chemistry and biology, communication and computer technologies, new materials, environmental technologies, nanotechnologies, and nuclear engineering. The JSI accumulates and disseminates knowledge and technologies to the benefit of society at the highest international level of excellence. The basic goals of the JSI are to provide expert scientific and applied output in the form of processes, products and consultancy, and to produce well-trained young scientists. The JSI possesses one of the leading NMR groups in the world (established in 1958), that is participating in NANOMAG and involving about 15 scientists. The group's frontline research activities include quasicrystals, incommensurate crystals, materials for spintronics and magnetoelectric materials, multiferroics, organic magnetic materials and complex metallic alloys with gigantic unit cell, which show outstanding combination of material properties. An important part of the research program is devoted to the development of new experimental methods and techniques in the field of magnetic resonance and magnetic resonance imaging. The group also has excellent experience in developing NMR laboratory and portable equipment.

Members of the group have been involved as coordinators/partners in 5 EU research projects. The head of the group Prof. Dr. J. Dolinšek is also the vice president of Groupement AMPERE, the European Magnetic Resonance Society (Zuerich, Switzerland).

Infrastructure

State of the art equipment for magnetic resonance spectroscopy: five NMRs (100/200/380/400/500MHz), fast-field-cycling NMR relaxometer, NQR, MRI imager, as well as pulsed/CW EPR, SQUID, PPMS with 3He, TEM, SEM STM, AFM and materials synthesis labs.

The role of JSI team in the consortium will be to train people in the use of the above characterization and growth techniques (prominently NMR and MRI) and to exchange expertise and contribute to the (i) synthesis and characterization of manganites and iron oxide based bulk, nanoparticles, thin films and molecular based magnets (ii), characterization of magnetic nanoparticles for biomedical applications and (iii) relaxivity efficiency for MRI.

Key scientists

Prof. Janez Dolinšek (Research Counselor at JSI, Head of JSI NMR group) NMR, MRI, *Dr. Tomaz Apih* NMR, *Dr. Stanislav Vrtnik* NMR, *Dr. Andraž Kocjan*: nanomaterials synthesis *Dr. Marko Jagodič* physical properties characterization, *Dr. Zvonko Jagličič* magnetism, 3PhD students