
SEMINAR FIZIČKOG ODSJEKA

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Topics and Techniques in NMR spectroscopy at ultra-high magnetic fields:

From condensed matter physics to half-integer quadrupolar nuclei

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Nuclear Magnetic Resonance (NMR) is a powerful method for investigating many problems in physics, chemistry and materials science. In chemistry one uses NMR to identify molecular structure, interactions and dynamics.

In physics NMR is applied to study properties of condensed matter like quantum phase transitions in strongly correlated electron systems. In both NMR communities there is a strong drive towards higher magnetic fields.

For chemistry this can substantially enhance both sensitivity and resolution. For physics, magnetic field can be applied as an external parameter to induce phase transitions. Recently, the options for NMR at the Grenoble high magnetic field facility (LNCMI) have been extended and opened to external users. We present an overview of this facility using selected research projects.

Topics to be covered:

- Condensed matter NMR under extreme conditions: 34 T, 1.5 GHz, 50 mK

- Sensitivity enhanced high resolution NMR of quadrupolar nuclei at 30 T

- Technical milestones towards implementation of high resolution NMR

Voditelj seminara FO

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