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## Seminar Fizičkog odsjeka

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Vrijeme (s.t.)

Mjesto

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### CeTX<sub>3</sub> Heavy Fermions

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Ce-based heavy fermion systems, whose electronic ground state properties are determined by strongly competing Ruderman-Kittel-Kasuya-Yosida (RKKY) and Kondo interactions, have attracted much attention due to their intriguing properties (including valence fluctuations (VF), heavy-fermion (HF) behavior, and different types of magnetic ordering). A wide range of intriguing physical properties have been observed in the proximity of a quantum critical point (QCP).

In particular, BaNiSn<sub>3</sub>-type HF antiferromagnets CeRhSi<sub>3</sub>, CeCoGe<sub>3</sub> and CeIrSi<sub>3</sub> were reported to become superconductors under pressure [1-3]. These discoveries received considerable attention, because BaNiSn<sub>3</sub>-type crystal structure lacks the center symmetry that was considered necessary for HF superconductivity [4].

In this talk our inelastic neutron scattering (INS) and muon spin rotation ( $\mu$ SR) studies on similar compounds (belonging to the CeTX<sub>3</sub> family, T = transition metal, X = metal) will be presented. Namely, some surprises found in CeCuAl<sub>3</sub> will be discussed along with the features observed in CeAuAl<sub>3</sub> (and, in less detail, CeRhSn<sub>3</sub> and CeCuGa<sub>3</sub>).

References: [1] Kimura N, Ito K, Saitoh K, Umeda Y and Aoki H. 2005 Phys. Rev. Lett. 95 247004 [2] Sugitani I et al. 2006 J. Phys. Soc. Jpn. 75 043703 [3] Settai R, Sugitani I, Okuda Y, Thamizhavel A, Nakashima M, Onuki Y and Harima H. 2007 J. Magn. Mater. 310 84 [4] Anderson P W. 1984 Phys. Rev. B 30 400

Voditelji seminara FO  
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