XV Krajowa Szkoła Nadprzewodnictwa
"Stulecie Nadprzewodnictwa"
Kazimierz Dolny, 9-13 października 2011 r.

Muon Spin Rotation and Relaxation Technique in Studies of Superconducting Materials

V.H. TRAN

Institute of Low Temperature and Structure Research,
Polish Academy of Sciences, 50-950 Wrocław, Poland

Owing to high sensitivity of the muon spin rotation and relaxation (μSR) techniques for the dynamics and weak magnetism, mSR method is widely used in investigations of strongly correlated electron systems [1]. The purpose of the following talk is to give a brief overview of μSR techniques, intended for graduate students and researches who plan to use these methods in their studies of superconducting materials. The main point of the talk will demonstate how to extract information from measurements, such as penetration depth, coherence lengths, pair-breaking peak, superconducting order parameter. As an illustration, some of our recent results on BCS-type $ThPt_4Ge_{12}$ [2], heavy-fermion two-gap-like Mo_3Sb_7 [3,4] and unconventional superconductor Ce_2PdIn_8 [5] will be presented.

[1] A. Yaouanc and P. Dalmas de Reeotier, *Muon Spin Rotation, Relaxation, and Resonance: Applications to Condensed Matter* (Oxford University, Oxford, 2011).

[2] V.H. Tran , A.D. Hillier, D.T. Adroja, D. Kaczorowski,
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[3] V.H. Tran, A.D. Hillier, D.T. Adroja, Z. Bukowski,
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[4] V.H. Tran, A.D. Hillier, D.T. Adroja, Z. Bukowski, W. Müller,
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[5] V.H. Tran, A.D. Hillier, D.T. Adroja, D. Kaczorowski, Proc. 26th International Conference on Low Temperature Physics, Aug 10-17 2011, Bejing, China.