Magnetic properties of UFeGe and UFeGeH₅ studied by $^{57}$Fe Mössbauer spectroscopy
A.M. Adamska¹,²,a, L. Havela¹, A. Błachowski³, K. Ruebenbauer¹, N.-T.H. Kim-Ngan³, J.C. Waerenborgh⁴
¹Department of Condensed Matter Physics, Charles University, Ke Karlovu 5, 12116 Prague 2, The Czech Republic ²Faculty of Physics and Applied Computer Science, AGH University of Science and Technology, Al. Mickiewicza 30, 30 059 Kraków, Poland ³Institute of Physics, Pedagogical University, ul. Podchorążyh 2, 30-084 Kraków, Poland ⁴Departamento de Quimica, Instituto e Nuclear/CFMC-UL, 2686-953 Sacavém, Portugal

UFeGe is an exception in the UTGe family as it crystallizes with a monoclinic distortion in contrast to the common TiNiSi structure. The electrical resistivity measurements led to a speculation about magnetic ordering below 80 K [F. Canepa et al., J. Alloys Compd. 234 (1996) 225]. Based on the analysis of the magnetic susceptibility, UFeGe was found to be paramagnetic with characteristic features of spin fluctuation [L. Havela et al., J. Magn. Magn. Mater. 177-181 (1998) 47]. The magnetism can be to some extent stimulated by hydrogenation and concomitant volume expansion for U compounds. However, hydrides of UFeGe remain paramagnetic, with enhanced magnetic susceptibility. The magnetic order at low temperatures was definitely excluded by means of the $^{57}$Fe Mössbauer spectroscopy, showing only a quadrupole splitting corresponding to the low symmetry of Fe sites.
a e-mail: anna@mag.mff.cuni.cz

Adamska A. M.
Presenting-Author
Blachowski A.
Havela L.
Kim-Ngan N.-T.H.
Ruebenbauer K.
Waerenborgh J.C.

Corresponding author: A.M. Adamska
Corresponding e-mail: anna@mag.mff.cuni.cz
Presenting author: A.M. Adamska
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