

Abstract Submitted
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⁵⁷Fe Mössbauer study of iron-silicide superconductor Lu₂Fe₃Si₅¹

XIAOMING MA, Ames Laboratory/ Iowa State Univeristy, Ames, IA 50011, USA and Institute of Applied Magnetics/ Lanzhou Univeristy, Lanzhou, Gansu 730000, China, SHENG RAN, Ames Laboratory/ Iowa State Univeristy, Ames, IA 50011, USA, HUA PANG, FASHEN LI, Institute of Applied Magnetics/ Lanzhou Univeristy, Lanzhou, Gansu 730000, China, PAUL CANFIELD, SERGEY BUD'KO, Ames Laboratory/ Iowa State Univeristy, Ames, IA 50011, USA — In order to investigate the changes of the hyperfine parameters of a compound when it goes into a superconducting state from a normal state, we studied Lu₂Fe₃Si₅. Lu₂Fe₃Si₅ is a superconductor with a transition temperature, $T_C \sim 6$ K and the Fe has been proved to be non-magnetic in a previous Mössbauer study[1]. We performed detailed ⁵⁷Fe Mössbauer spectra measurement on Lu₂Fe₃Si₅ from room temperature down to 4.4 K with particular attention paid to region near T_C . No clear feature that can be associated with the superconducting transition was found in the hyperfine parameters. Detailed hyperfine parameters and recoilless fraction as a function of temperature will be presented and discussed.

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