

Electron spin resonance of Eu²⁺ in the Eu doped clathrate Ba₆Ge₂₅

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Abstract

We report electron spin resonance (ESR) investigations of the clathrate compound Ba_{6-x}Eu_xGe₂₅ ($x=0.03-0.4$) which exhibits a temperature induced, two-step reconstructive structure transformation at temperatures between 185 K and 223 K. The linewidth of the Eu²⁺ ESR proves to be sensitive to the transformation. Another anomaly in the temperature dependence of the linewidth is found near $T=60$ K which points towards another possible structural transition. Both anomalies seen in the ESR linewidth are not sensitive to the Eu content in contrast to the strong Eu-concentration dependence of transport properties. © EDP Sciences, Società Italiana di Fisica, Springer-Verlag 2005.

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