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## Electron spin resonance of Eu<sup>2+</sup> in the Eu doped clathrate Ba<sub>6</sub>Ge<sub>25</sub>

Sichelschmidt J., Carrillo-Cabrera W., Ivanshin V., Grin Y., Steglich F.  
*Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia*

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### Abstract

We report electron spin resonance (ESR) investigations of the clathrate compound Ba<sub>6-x</sub>Eu<sub>x</sub>Ge<sub>25</sub> ( $x=0.03-0.4$ ) which exhibits a temperature induced, two-step reconstructive structure transformation at temperatures between 185 K and 223 K. The linewidth of the Eu<sup>2+</sup> 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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