

Abstract Submitted
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Self-energy of half-metallic ferromagnet Mn_5Ge_3 calculated from infrared spectroscopy data S.V. DORDEVIC, The University of Akron, N. STOJILOVIC, John Carroll University, L.W. KOHLMAN, The University of Akron, C. PETROVIC, Brookhaven National Laboratory — We will report the results of our infrared and optical spectroscopy study of a half-metallic ferromagnet Mn_5Ge_3 . This compound is currently being investigated as potential injector of spin polarized currents into germanium. Infrared measurements have been performed over a broad frequency ($30 - 50000 \text{ cm}^{-1}$) and temperature ($10 - 300 \text{ K}$) range. From the complex optical conductivity $\sigma(\omega)$ we extract the electron self-energy $\Sigma(\omega)$. The calculation of $\Sigma(\omega)$ is based on novel numerical technique which uses Levenberg–Marquardt algorithm for solution of systems of non-linear equations. Obtained self-energy provides a new insight into electron correlations in Mn_5Ge_3 .

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