EFFECT OF HEAVY ION IRRADIATION ON THE MAGNETIC PROPERTIES OF $CuGeO_3$

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9.7 cm

The influence of heavy ion irradiation on the magnetic properties of the spin-Peierls compound $CuGeO_3$ has been investigated by means of the electron paramagnetic resonance (EPR), the spontaneous magnetization and the low field ac susceptibility. The measurements were performed on the $CuGeO_3$ single crystals before and after irradiation with 80 MeV oxygen ions in the wide temperature range 2-300 K.
It was found that the irradiation induced an increase in the EPR signal intensity, magnetization and susceptibility of this material. It was also shown that the irradiation do not lead to a decrease of the spin-Peierls transition temperature and to the formation of an antiferromagnetic phase which is expected to appear in disordered spin-Peierls systems. The analysis of the experimental data in the spin-Peierls phase indicates a complete destruction of both the energy gap and the dimerization within the Cu chains.

13.4 cm

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