

Spin Lattice Relaxation of ^8Li in a Ferromagnetic EuO Epitaxial Thin Film

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We inject a low energy spin polarized $^8\text{Li}^+$ beam into an epitaxially grown multilayer film consisting of Au(20nm)/EuO(100nm)/LaAlO₃, and investigate the nuclear spin relaxation at 3.33 Tesla. The relaxation varies with implantation energy below 28keV as the fraction of the probe ^8Li stopping in each layer changes. We attribute the fast relaxing component to the EuO, while the much slower relaxation has contributions from both the Au and the substrate. However, fast relaxation is still observed at the lowest implantation energy where all the ^8Li stops in the Au capping layer. This may be due to a proximity effect from the EuO or from paramagnetic Eu^{2+} at the Au/EuO interface.

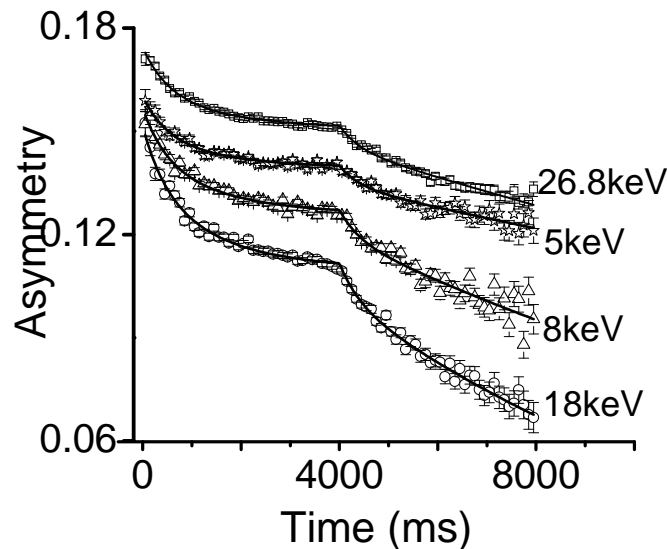


Fig. 1: Spin relaxation spectra as a function of implantation energy at 7.5K below the Curie temperature ≈ 69 K.