Study of $^8$Li$^+$ in platinum using $\beta$-NMR technique


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The Knight shift and spin-lattice relaxation rate of isolated $^8$Li$^+$ in a 50 nm thick film of the enhanced paramagnet platinum (Pt) is investigated with the $\beta$-detected NMR technique. An example of the resonance spectrum is shown in Fig.1, indicating that the frequency shift of Pt compared to the insulator MgO is negative (approximately -330 ppm at room temperature). The shift and spin-lattice relaxation are studied from 5 to 300 K. The results in Pt will be compared to those obtained for isolated $^8$Li$^+$ in simple elemental metals such as silver [1] and copper [2], as well as another enhanced paramagnet Pd [3].

![Resonance Spectrum](image)

Fig. 1: Typical resonance spectrum of $^8$Li$^+$ in Pt/MgO sample at 100 K.