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Superfluid Density in the 111 Fe Pnictide Superconductors C. J. ARGUELLO, T. GOKO, J.P. CARLO, Y.J. UEMURA, Columbia University, A.A. ACZEL, T.J. WILLIAMS, G.M. LUKE, McMaster University, C.Q. JIN, Beijing IoP — We performed muon spin relaxation studies in two kinds of '111' iron pnictides, $\text{Li}_{1.1}\text{FeAs}$ and $\text{Li}_{0.9}\text{FeP}$. The zero field spectra of the latter show a fast relaxation in a small volume fraction (approximately 13%) due probably to magnetism. In the case of the arsenide, the zero field spectra show a completely paramagnetic state. Below T_c , an applied transverse field allowed us to measure the superfluid density (via relaxation rate σ) for both compounds. We found that both of them have very high superfluid density and low T_c : $\sigma(T = 2K) \simeq 1.8\mu s^{-1}$ with $T_c \simeq 18K$ for $\text{Li}_{1.1}\text{FeAs}$, and $\sigma(T = 2K) \simeq 2.0\mu s^{-1}$ with $T_c \simeq 4K$ for $\text{Li}_{0.9}\text{FeP}$.

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