

DC Magnetization Measurements of LiFeAs under High Pressure

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The pressure effect of T_c in layered superconductor LiFeAs has been investigated by DC magnetic measurements using diamond anvil cell combined with a sample rod of commercial SQUID magnetometer. It has been found that T_c decreases monotonously for $P \leq 5$ GPa with a pressure coefficient $dT_c/dP \sim -1.5$ K/GPa. We have also observed that the $T_c - P$ curve tends to be constant for $P \geq 5$ GPa. Recently, it has been reported that the pressure dependence of T_c and Se height h_{Se} from the nearest iron layer in FeSe superconductor is qualitatively similar to each other, suggesting the strong correlation between them.¹ A strong correlation between T_c and As height h_{As} may be generally found in iron arsenide superconductors. The origin of the characteristic pressure dependence of T_c in LiFeAs will be discussed considering the pressure dependence of h_{As} extracted from the recently reported structural data.²

¹H. Okabe *et al.*, Phys. Rev. B **81**, 205119 (2010).

²M. Mito *et al.*, J. Am Chem. Soc. **131**, 2986 (2009).