

Abstract Submitted
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A de Haas-van Alphen study of the Fermi surface of LiFeP¹ C. PUTZKE, A. CARRINGTON, I. GUILLAMON, University of Bristol, A. COLDEA, M. WATSON, University of Oxford, D. VIGNOLLES, D. LEBOEUF, LNCMI, Toulouse, A. MCCOLLAM, HFML Nijmegen, I.I. MAZIN, Naval Research Laboratory, Washington, S. KASAHARA, T. TERASHIMA, T. SHIBAUCHI, Y. MATSUDA, Kyoto University — We report de Haas-van Alphen (dHvA) measurements of the Fermi surface of the 111 iron based superconductor LiFeP with $T_c \approx 5$ K. Comparison of our experimental results to density functional theory band-structure calculations show good agreement. As in other iron-based superconductors we find that the electron and hole bands are quasi-nested. The effective masses, determined individually for the different Fermi surface sheets (orbits) generally show significant enhancement. The smallest hole pocket sheet is an exception to this and shows a very small enhancement. This difference in the many body interaction suggest a suppression of electron-hole scattering for this sheet which may result from its different orbital character. This might be the reason why LiFeP has nodes in its superconducting gap whereas its sister compound LiFeAs does not.

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