

Abstract Submitted
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High magnetic field calibration using de Haas-van Alphen oscillations in polycrystalline copper¹ WILLIAM A. CONIGLIO, National High Magnetic Field Laboratory, ALAN F. WILLIAMS, ANNA YANNAKOPOULOS, Florida State University/National High Magnetic Field Laboratory, AUDREY GROCKOWIAK, STAN TOZER, National High Magnetic Field Laboratory — We provide a calibration for the de Haas-van Alphen (dHvA) frequency in polycrystalline copper, which may be used to standardize the measurement of magnetic fields, particularly in pulsed field environments, where direct observation of NMR is challenging. Using a reliable single-crystal model of the Fermi surface from coefficients that are traceable to a powder Al NMR reference, we computed Fermi surface extremal areas for evenly spaced directions around a sphere. Summing the peaks corresponding to extremal orbits according to the Lifshitz-Kosevich model, we arrive at a dHvA spectrum that corresponds to experimental observation. We find that actual maximum fields reached at the NHMFL-Pulsed Field Facility are slightly larger than previously determined.

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