

Abstract Submitted
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Probing the coexistence of superconductivity and ferromagnetism CHRISTIAN URBAN, ALI BASARAN, University of California San Diego, URSULA PACHMAYR, DIRK JOHRENDT, Department Chemie, Ludwig-Maximilians-Universitaet Muenchen, IVAN K. SCHULLER, University of California San Diego, LUDWIG-MAXIMILIANS-UNIVERSITAET MUENCHEN COLLABORATION — We present magnetic field modulated microwave spectroscopy (MFMMS) and VSM data of a lithiated iron selenide hydroxide, $[(\text{Li}_{1-x}\text{Fe}_x)\text{OH}](\text{Fe}_{1-y}\text{Li}_y)\text{Se}$ ($x=0.2$, $y=0.08$). This compound is one of the few claimed to exhibit superconductivity below 43 K together with ferromagnetism below 10 K. MFMMS is a unique technique which is highly sensitive and selective to electronic phase transitions. It allows us to probe the superconductivity and ferromagnetism at the same time in the lithiated iron selenide hydroxide. This is the first time that a microwave signature of this class of materials is presented. We compare our results to standard magnetometry measurements. This study is financially supported by the AFOSR Grant No. FA9550-12-1-0381.

Christian Urban
University of California San Diego

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