Abstract Submitted
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Characterizing phase transitions in known materials with Magnetic Field Modulated Microwave Spectroscopy (MFMMS)[1] JAMES WAMPLER, Dept. of Physics, Center for Advanced Nanoscience, Univ. of California, JUAN GABRIEL RAMIREZ, Dept. of Physics, Universidad de los Andes, Bogot, Colombia, ALI BASARAN, Dept. of Physics, Gebze Technical Univ, IVAN SCHULLER, Dept. of Physics, Center for Advanced Nanoscience, Univ. of California — We have previously introduced Magnetic Field Modulated Microwave Spectroscopy (MFMMS), a sensitive and selective technique used to identify electromagnetic phase transitions in homogenous and inhomogeneous materials. By scanning the temperature, we can detect the phase transitions of a material. In standard operation, samples are placed in a microwave cavity with a resonance frequency of 9.4 GHz. A 100 kHz modulation field with 15 Oe amplitude and an optional DC field are applied while temperature is scanned. [1,2,3]. Here we will discuss different methods to further characterize phase transitions by scanning DC field while temperature is fixed. Since the response of different phase transitions to the applied field is varied, DC field scans can help to distinguish and reveal the origin of the transition. We have investigated many known superconducting and other reference materials and will compare the results in these different materials. 1. J. G. Ramírez, A. C. Basaran *et al.*, *Rep. Prog. Phys.* **77**, 093902 (2014). 2. S. Guénon *et al.*, *Scientific Reports* **4**, 7333 (2014). 3. S. Guénon *et al., arxiv:1509.04452,* manuscript submitted.

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