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Infrared Kerr measurements in ferromagnetic silicon carbide ALOK MUKHERJEE, CHASE ELLIS, NADA TESAROVA, JOHN CERNE, Physics Dept., University at Buffalo, Buffalo, NY, YU LIU, SHUNCHONG WANG, GANG WANG, Institute of Physics, Chinese Academy of Sciences, China — We measure the infrared (100-1000 meV) polar Kerr angle in ferromagnetic silicon carbide (SiC). The Kerr angle is sensitive to the Hall conductivity σ_{xy} and measures the difference of optical responses for left and right circularly polarized light, which makes it a sensitive spectral probe for small changes in the symmetry of the system due to magnetic order. Both neutron-irradiated and Al-doped samples are studied in the 10-300K temperature range. This study provides new insights into the mechanisms by which non-magnetic impurities and defects can produce magnetic order. Strong frequency dependence and hysteresis are observed in the Kerr measurements. Work supported by NSF-DMR1006078.

[X] Prefer Oral Session
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Alok Mukherjee
alokmukh@buffalo.edu
Physics Dept., University at Buffalo, Buffalo, NY

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