Abstract Submitted
for the DAMOP12 Meeting of
The American Physical Society

Electric and Magnetic Field Sensing with a Charged Particle Moire Deflectometer[1] ROGER BACH, HERMAN BATELAAN, University of Nebraska-Lincoln, GLEN GRONNIGER, Kansas City Plant, National Secure Manufacturing Center — We report on the realization of a charged particle Moiré deflectometer and it ability to sense electric and magnetic fields. To the best of our knowledge this is the first realization of such a device. Our Moiré deflectometer is based on the classical propagation of an electron beam through a set of three identical nanofabricated gratings. This device can be used with or without collimation of the electron beam. Fields between the gratings shift the beam, resulting in a change in the total transmitted intensity. The scalability and sensitivity will be discussed as well as some of the complications.

[1]We gratefully appreciate funding for this project from NSF and Honeywell.

Roger Bach
University of Nebraska-Lincoln

Date submitted: 27 Jan 2012 Electronic form version 1.4