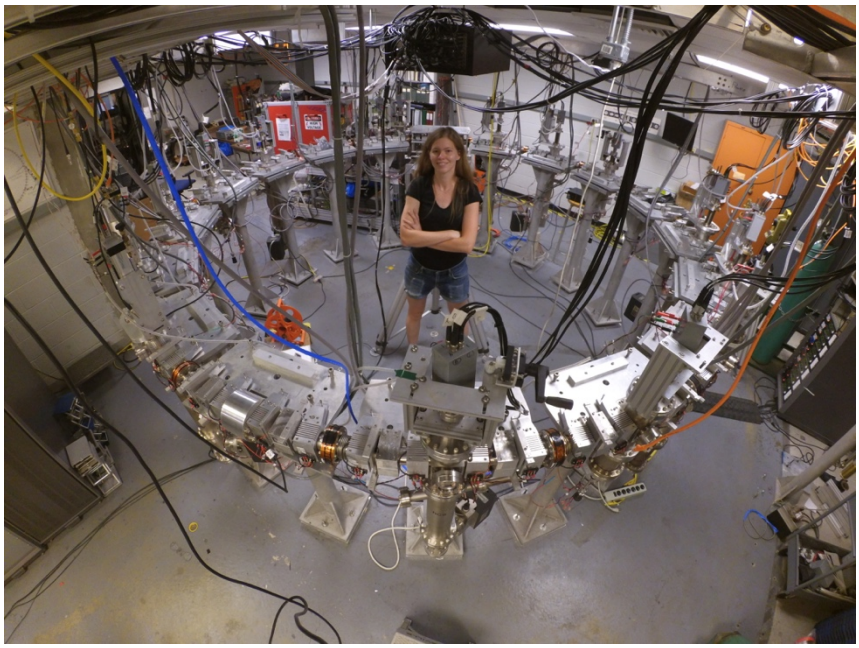
John Adams Institute for Accelerator Science

Science & Technology Facilities Council

John Adams Institute for Accelerator Science Seminar Series
Joint Seminar with ISIS Neutron & Muon Source

Thursday 22nd February 2018 at 4:00 pm
Fisher Room, Denys Wilkinson Building, Keble Rd, Oxford

Design of nonlinear quasi-integrable optics for resonance suppression at the University of Maryland Electron Ring



Kiersten Ruisard
University of Maryland

Nonlinear integrable optics is a promising development on the horizon of high-intensity ring design. Large amplitude-dependent tune spreads, driven by strong nonlinear magnet inserts, lead to nonlinear decoherence from incoherent tune resonances. This reduces intensity-driven beam loss while quasi-integrability ensures a well-contained beam. The nonlinear lattice also damps mismatch-driven halo growth due to fast decoherence of envelope modes. The University of Maryland Electron Ring (UMER) is preparing to test the applicability of quasi-integrable nonlinear optics to resonance damping and halo control. With printed-circuit magnets and a low-power, variable-intensity electron beam (which scales to higher-power hadron machines), UMER is a flexible, low-cost test facility for this novel concept. I will cover experimental plans and preparations, including characterizing measurements of a “low-charge” UMER beam.

For further details contact:
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