

Abstract Submitted
for the DPP07 Meeting of
The American Physical Society

Multi-element Magnetic “B-dot” Probe¹ SAMUEL HARROLD²,
Univ Rochester, NUF, TOM INTRATOR, XUAN SUN, LANL — We describe a 24-
element magnetic probe consisting of miniature commercial chip inductors that will
be used to investigate the evolution of the magnetic field lines during a reconnection
event. Eight clusters of three mutually orthogonal inductor coils mounted in a linear
array provide dB/dt data in the x , y , and z directions with a spatial resolution of
0.5 cm. The probe will be part of the Reconnection Scaling Experiment (RSX) at
Los Alamos National Laboratory, which creates multiple magnetic flux ropes of H^+
plasma. Using numerical integration, we expect to measure magnetic field strengths
of 1-10 gauss. The plasma columns of RSX that undergo magnetic reconnection,
merging, and bouncing evolve on a characteristic timescale of 1-10 μs , which is well
within the probe’s expected time resolution.

¹This work was supported by the National Undergraduate Fellowship (NUF) through
PPPL.

²Undergraduate Poster Session

Samuel Harrold
Univ Rochester, NUF

Date submitted: 18 Jul 2007

Electronic form version 1.4