Multi-element Magnetic “B-dot” Probe$^1$ SAMUEL HARROLD$^2$, 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 $\mu$s, which is well within the probe’s expected time resolution.

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