

Abstract Submitted  
for the DPP05 Meeting of  
The American Physical Society

**Inductive Plasma Accelerator (IPA)** TIMOTHY ZIEMBA, MSNW, JOHN SLOUGH, RICHARD MILROY, University of Washington — The Inductive Plasma Accelerator (IPA) is a plasma accelerator/interaction experiment currently under construction at MSNW. The accelerator will be capable of launching a Field Reversed Configuration (FRC) plasmoid having a mass of up to 0.2 mg with a diameter no larger than about 10 cm. In addition, the accelerator will be designed to attain plasma/plasmoid velocities up to 300 km/s while maintaining high uniformity and purity. Two IPAs will be arranged on a test bed to perform FRC merging experiments. In addition, an interaction chamber will be constructed to produce and implode a plasma liner for enhanced compression experiments on the merged FRCs thus providing the first experimental test of the plasma liner fusion concept. 2D MHD simulations show expected densities of  $> 10^{22} \text{ m}^{-3}$  with ion temperatures in excess of 800 eV for the merging FRCs. The status of design and construction of the experiment and additional simulation results will be presented

Timothy Ziemba  
MSNW

Date submitted: 27 Sep 2005

Electronic form version 1.4