

Abstract Submitted
for the DPP08 Meeting of
The American Physical Society

Sorting Category: 5.6.4 (E)

Overview of the Pegasus toroidal experiment¹ A.C. SONTAG, D.J. BATTAGLIA, M.W. BONGARD, J.A. COLE, C.C. HEGNA, E.T. HINSON, B.A. KUJAK-FORD, B.T. LEWICKI, A.J. REDD, A.P. ROBINSON, A.R. WIERSMA, G.R. WINZ, University of Wisconsin - Madison — Extremely low aspect ratio ($A < 1.3$) allows Pegasus to achieve $I_N > 12$ and $\beta_t > 20\%$ Ohmically. I_p and q -profile manipulation using programmable magnet coil currents suppress internal tearing modes. Washer-stack point-current sources (plasma guns) are used to initiate non-solenoidal discharges with toroidal plasma current in excess of 60 kA via DC helicity injection. Present research is aimed at understanding the physics of this startup technique to form discharges with I_p 200 kA without central induction. Low TF and high edge current allows potential study of peeling stability. Estimates using DCON indicate that the Pegasus plasma edge is peeling unstable, consistent with the observation of spatially coherent edge filaments and accompanying magnetic fluctuations. Planned upgrades to the center-column will increase the available Ohmic flux by a factor of 5-10 and the toroidal field by a factor of 5. These upgrades will support tests of the scalability of the point-source helicity injection and enable feasibility tests of advanced divertor configurations.

¹Supported by US DOE grant DE-FG02-96ER54375.

Prefer Oral Session
 Prefer Poster Session

Aaron Redd
aredd@wisc.edu
University of Wisconsin - Madison

Date submitted: 21 Jul 2008

Electronic form version 1.4