Abstract Submitted
for the DPP07 Meeting of
The American Physical Society

Alfvénic Modes in HSX Stellarator C. DENG, D.L. BROWER, University of California, Los Angeles, D.A. SPONG, Oak Ridge National Laboratory, B.N. BREIZMAN, University of Texas, Austin, A.F. ALMAGRI, D.T. ANDERSON, F.S.B. ANDERSON, W. GUTTENFELDER, K. LIKIN, J. LORE, J. LU, S. OH, J.W. RADDER, J. SCHMITT, K. ZHAI, University of Wisconsin-Madison — Coherent, global fluctuations in the range of 20-120 kHz are observed for quasi-helically-symmetric, 2^{nd} Harmonic X-mode ECRH produced plasmas in HSX (B_T=0.5T). Measurements and theory indicate that the mode with helicity m/n=1/1 is likely a global Alfvén eigenmode (GAE) driven by nonthermal electrons. Under certain conditions, a satellite mode of same helicity is observed with frequency ∼20 kHz higher than the primary mode. Radial structure of both the primary and satellite modes are obtained by inversion of interferometry data showing peaks at different spatial locations. Finite pressure effects, even at low plasma beta, distort the Alfven continuum and mode frequency for these low m,n modes. For HSX operation at B_T=1T with first Harmonic O-mode ECRH, the fast electron population is reduced and the mode is no longer observed. **Supported by USDOE contracts DE-FG03-01ER54615 and DE-FG02-93EE54222.*

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Date submitted: 13 Jul 2007 Electronic form version 1.4