

Abstract Submitted  
for the DPP09 Meeting of  
The American Physical Society

**Dynamic Confinement of ITER Plasma by X-Mode Driver at Electron Cyclotron Frequency Range**<sup>1</sup> V. ALEXANDER STEFAN, Institute for Advanced Physics Studies (Stefan University) — Nonlinear interaction of the electron cyclotron X-Mode driver<sup>2</sup> with the ITER plasma leads to the dynamic rf plasma confinement in addition to the rf turbulent heating. The dynamics of unstable dissipative trapped particle modes (DTPM)<sup>3</sup> strongly coupled to Trivelpiece-Gould (T-G) modes is studied for the gyrotron frequency of 170GHz; X-mode power of 24 MW CW; and with on-axis B-field of 10T. In the case of dynamic control of DTPM turbulence and for the heavily damped T-G modes, the energy confinement time scalings are evaluated. The ITER plasma-ignition criterion is analyzed in terms of the X-Mode power.

<sup>1</sup>Supported by Nikola TESLA Lab., La Jolla, CA.

<sup>2</sup>R. Prater et. al., *Nucl. Fusion* 48, No 3 (March 2008).

<sup>3</sup>V. Alexander Stefan, 2009 APS April Meeting; May 2-5, 2009, Denver, Colorado; Abstract: K1.00028

V. Alexander Stefan  
Institute for Advanced Physics Studies (Stefan University)

Date submitted: 27 Aug 2009

Electronic form version 1.4