

Abstract Submitted
for the DPP08 Meeting of
The American Physical Society

EBW Power Deposition and Fisch-Boozer Current Drive in the WEGA Stellarator JOSEF PREINHAEELTER, Czech Academy of Sciences, Prague, HEINRICH LAQUA, Max Planck Institute, Greifswald, JAKUB URBAN, Czech Academy of Sciences, Prague, LINDA VAHALA, Old Dominion University, GEORGE VAHALA, William & Mary — We predict current drive following wave absorption of EBW in the WEGA stellarator. From the Fisch-Boozer mechanism, we estimate the driven current density from the power deposition into the individual harmonics and the direction of the resonant velocity. This driven current has been observed experimentally; but the experimental results are only in partial agreeing with the simulations. Simulations of the radial current profiles confirm the observed current reversal in some cases. These current reversals occur when there is a hot plasma component present with subsequent EBW absorption on the first and the second electron cyclotron harmonics. The reason for the strong absorption is a very pronounced change in the parallel component of the wave vector ($N_{\parallel} \sim 30$). The generated RF current was mostly sensitive to the additional vertical magnetic field. Further work is needed to bring better agreement between our simulations and the experiments.

Linda Vahala
Old Dominion University

Date submitted: 28 Jul 2008

Electronic form version 1.4