

Abstract Submitted
for the APR06 Meeting of
The American Physical Society

Sorting Category: L9. (T)

**Anomalous Absorption of X2-Driver Pump Power in
DIII-D Tokamak Plasma Via Relativistic Electron Bernstein
Modes and Lower Hybrid Waves**

V. STEFAN, Tesla Laboratories,
The Stefan University, 1010 Pearl Street, P. O. Box 2946, La Jolla,
CA 92038 — Recently¹ I have reported on anomalous absorption of
relativistic electron Bernstein modes (R-E-B) for various driver-plasma
parameters in Spherical Tokamaks and DIII-D Tokamak plasma. Here
I focus on X2-Driver Pump decay in DIII-D Tokamak plasma involving
lower-hybrid waves (LHW). This channel involves the Brillouin scattering
of X2-Mode into another (X2)'-mode coupled to the lower-hybrid
waves (LHW). The nonlinearly generated (X2)'-Mode propagates to-
ward the second harmonic electron cyclotron layer, whereby it is ab-
sorbed through R-E-B-Mode conversion, as in case of linear propagation-
absorption channel. This leads to a strongly localized absorption. The
weak LHWs are collisionally absorbed in the dense plasma region trans-
ferring the energy to ion plasma component—bulk plasma heating. The
secondary decays of X2, X1, and EB modes, are taken into account in
evaluation of energy confinement time in multi-ion plasmas

¹V. Stefan. Anomalous Absorption of R-E-B Modes Due to Raman and
Brillouin Scattering, and Two EB-Mode Decay of X2-Driver in DIII-D
Tokamak Plasma. 16th Topical Conf. on RF Power in Plasmas [Park City,
2005] V. Stefan. Enhanced Thermonuclear Yield Due to Low-Harmonic
REB Modes in Spherical Tokamak Plasmas. Sherwood-2005 [Stateline,
Nevada, USA]

V. Stefan

wisdom@stefan-university.edu

Prefer Oral Session
 Prefer Poster Session

Tesla Laboratories, The Stefan University, 1010 Pearl Street,
P. O. Box 2946, La Jolla, CA 92038

Date submitted: 09 Jan 2006

Electronic form version 1.4