

Abstract Submitted
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Anomalous Plasma Heating at the Center of ITER due to the Two Plasmon, (Gould-Trivelpiece Modes), Turbulence¹ V. ALEXANDER STEFAN, Institute for Advanced Physics Studies, Stefan University, La Jolla, CA 92037 — The parametric excitation of two Gould-Trivelpiece modes with gyrotrons in electron cyclotron frequency^{2,3} domain is studied. The most powerful G-T modes counter propagate at the angle of 45^0 with respect to the toroidal magnetic field. Around 10 % of the G-T modes energy is convected⁴ away toward the plasma edge, whereby it is dissipated via Landau damping. This generates suprathermal electrons and dragged by them accelerated ions. Based on a weak parametric turbulence theory⁵ the gyrotron dissipation rate is evaluated, showing strong bulk heating at the ITER center. The energy confinement time, in terms of gyrotron intensity, scales as $I_o^{-4/3}$.

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⁴M. N. Rosenbluth, *Phys. Rev. Letters*, **29**, 565 (1972).

⁵V. Alexander Stefan, *Nonlinear Electromagnetic Radiation Plasma Interactions*, (S-U-Press, 2008).

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