Abstract Submitted
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Parametric decay of plasma waves near the upper-hybrid resonance[1] I. Y. DODIN, PPPL, A. V. AREFIEV, UCSD — An intense X wave propagating perpendicularly to dc magnetic field is unstable with respect to a parametric decay into an electron Bernstein wave and a lower-hybrid wave. A modified theory of this effect is proposed that extends to the high-intensity regime, where the instability rate γ ceases to be a linear function of the incident-wave amplitude [1]. An explicit formula for γ is derived and expressed in terms of cold-plasma parameters. Theory predictions are in reasonable agreement with the results of the particle-in-cell simulations reported in Ref. [2].
[1] I. Y. Dodin and A. V. Arefiev, Phys. Plasmas **24**, 032119 (2017).
[2] A. V. Arefiev, I. Y. Dodin, A. Köhn, E. J. Du Toit, E. Holzhauer, V. F. Shevchenko, R. G. L. Vann, arXiv:1612.07860, to appear in Nucl. Fusion.

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