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Self-organization and threshold of stimulated Raman scattering DIDIER BENISTI, OLIVIER MORICE, LAURENT GREMILLET, EVANGELOS SIMINOS, CEA/DAM/DIF, DAVID STROZZI, LLNL — We derive, both theoretically and using an envelope code, threshold intensities for stimulated Raman scattering which compare well with results from Vlasov simulations [1]. To do so, we account for the nonlinear decrease of Landau damping and for the detuning induced by, both, the nonlinear wave number shift and frequency shift of the plasma wave. In particular, we show that the effect of the wave number shift may cancel out that of frequency shift, but only in that plasma region where the laser intensity decreases along the direction of propagation of the scattered wave. Elsewhere, the wave number shift enhances the detuning effect of the frequency shift.

[1] D. Bénisti, O. Morice, L. Gremillet, E. Siminos and D.J. Strozzi, Phys. Rev. Lett. **105**, 015001 (2010).

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