Nonlinear kinetic modeling of stimulated Raman scattering in a non-uniform and non-stationary plasma DIDIER BENISTI, CEA, DAM, DIF — We provide a theoretical description of stimulated Raman scattering that allows for collisionless dissipation as described in [1] (and, in particular, of the nonlinear reduction of the Landau damping rate), and that accounts for the nonlinear frequency shift of the plasma wave and for the growth of sidebands. Non-uniform and non-stationary effects are derived by making use of a variational principle. The central direction of propagation of the pump laser is calculated with the usual ray-tracing method. However, non-paraxial equations are used for the plasma and scattered waves in order to account for the self-focusing induced by the nonlinear frequency shift.

[1] D. Bénisti, O. Morice and L. Gremillet, Phys. Plasmas **19**, 063110 (2012).

Didier Benisti
CEA, DAM, DIF