

Abstract Submitted
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Kinetically driven Raman scattering in short, bi-speckle laser-plasma interaction experiments KEVIN GLIZE, CHRISTOPHE ROUSSEAU, CEA, DAM, DIF, F-91297 Arpajon, France, SOPHIE BATON, LULI, Ecole Polytechnique, 91128 Palaiseau, France, VINCENT DERVIEUX, CEA, DAM, DIF, F-91297 Arpajon, France, LIVIA LANCIA, Università di Roma, 00161 Roma, Italy — In order to investigate collective speckles behavior in laser-plasma interaction, bi-speckle experiments have been performed using the ELFIE facility (LULI). Two independent laser pulses (1.06 nm, 1.5 ps FWHM) interact with preformed He plasma (0.06 nc, 300 eV). The first beam drives stimulated Raman scattering, while the second, which its intensity is set near SRS threshold, is focused near the first one (typically 90 μm). The interaction, with crossed and parallel polarization, was studied for both variation of the time delay and the lateral distance between the two pulses, featuring a highly resolved Thomson-scattering diagnostic and backward Raman imaging. It is shown that the kinetic perturbations are of primary importance on triggering SRS in the weak speckle, which exhibits SRS instability up to an expectedly long time delay after the interaction of the strong one. The experimental results will be discussed with the help of 2D PIC simulations (CALDER code).

Kevin Glize
CEA, DAM, DIF, F-91297 Arpajon, France

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