

Abstract Submitted
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Thomson scattering in both the collective and non-collective regime in a laser produced plasma JAMES ROSS, JEFFREY LEVESQUE, BRADLEY POLLOCK, DUSTIN FROULA, LAURENT DIVOL, DWIGHT PRICE, SIEGFRIED GLENZER, Lawrence Livermore National Laboratory, University of California, P.O. Box 808, Livermore, California, 94551, ALLAN OFFENBERGER, Department of Electrical Engineering, University of Alberta, Edmonton, Alberta, Canada T6G 2V4 — We present Thomson-scattering measurements of light scattered from ion-acoustic and electron plasma fluctuations in an N₂ gas jet plasma. The transition from the collective regime to the non-collective regime for the electron feature is observed by varying the plasma density from $2.5 \times 10^{18} \text{ cm}^{-3}$ to $1.7 \times 10^{19} \text{ cm}^{-3}$ and the temperature from 100 eV to 300 eV. These measurements allow an accurate local measurement of both temperature and density. A discussion on the sensitivity to non-maxwellian electron distribution functions will be presented. This work was performed under the auspices of the U.S. Department of Energy by the Lawrence Livermore National Laboratory under Contract No. W-7405-ENG-48. UCRL-ABS-223005.

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