X-ray Thomson scattering on compressed Be plasmas

HAE JA LEE, Physics Department, University of California, Berkeley, CA 94720-7300, PAUL NEUMAYER, OTTO LANDEN, Lawrence Livermore National Laboratory, 7000 East Avenue, Livermore, CA 94550, ROGER FALCONE, Physics Department, University of California, Berkeley, CA 94720-7300, SIEGFRIED GLENZER, Lawrence Livermore National Laboratory, 7000 East Avenue, Livermore, CA 94550 — X-ray Thomson scattering measurements have provided much insight into characterization of dense plasmas such as in determining electron temperature, density, and ionization state [1]. We performed spectrally resolved 6 keV x-ray scattering on laser shock compressed Be plasmas in both the non-collective and collective forward scattering regime at the Omega laser facility. From the forward scattering geometry, we have measured a plasmon peak whose frequency is sensitive to the electron density. We will present first data that indicate a density of \( n_e = 8 \times 10^{23}/\text{cc} \) can be reached for a pressure of 10-15 Mbar.


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