On the interpretation of CO2 collective scattering in terms of fluctuations and gross plasma motion

A 15 On the Interpretation of CO_2 Collective Scattering in terms of Fluctuations and Gross Plasma Motion. D.C. SCHRAM, B.F.M. POTS, Eindhoven University of Technology, and H.W.H. VAN ANDEL, Université de Montréal -- Collective scattering of infrared laser light (CO_2 and FIR) is used in several laboratories to obtain detailed information on density fluctuations in terms of the spectral density function $S(\underline{k},\omega)$. Measurements in magnetised plasmas have generally shown strong fluctuation levels for perpendicularly propagating disturbances. An important question which remains is whether the obtained signal signifies the presence of waves or turbulence, or is merely the result of gross plasma motion through the scattering volume. Measurements along a central chord pertain to poloidally directed $\underline{k}$, for example of drift waves, while those along outside chords correspond to radial $\underline{k}$. It is well possible that these latter measurements are mainly due to gross motion which moves plasma in and out of the scattering volume. In this presentation we will show from results obtained in a test experiment, in which independent information on the macroscopic plasma motion was available, that measurements along the central chord relate to drift waves, whereas the measurements along peripheral chords can be explained by macroscopic plasma motion.