

Abstract Submitted  
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**Investigation of micro-turbulence and particle transport in LHD** CLIVE MICHAEL, KENJI TANAKA, National Institute for Fusion Science, LEONID VYACHESLAVOV, ANDREY SANIN, Budker Institute of Nuclear Physics, OSAMU YAMAGISHI, MASAYUKI YOKOYAMA, KATSUMI IDA, KAZUO KAWAHATA, National Institute for Fusion Science — It is well known that particle and energy transport in fusion plasmas is driven strongly by micro-turbulence. Using a recently developed CO<sub>2</sub> laser 2d imaging interferometer, spatially resolved density fluctuations in the range  $5 - 15\text{mm}^{-1}$  are measured. A comparison is made between discharges with significantly different particle transport coefficients, obtained from gas-puff modulation experiments. Different fluctuation branches are identified, according to their phase velocity. The amplitude of fluctuations with the ion diamagnetic drift velocity is larger when transport is enhanced, however, for other branches the tendency is opposite. The computed growth rate for ion temperature gradient (ITG) turbulence also scales with the amplitude of the i-dia branch. These results suggest that ITG turbulence plays an important role for anomalous transport.

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