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**Frequency spectra of plasma density fluctuations in HSX**[1] KONSTANTIN LIKIN, DAVID ANDERSON, SIMON ANDERSON, CHUANBAO DENG, JOSEPH TALMADGE, Univ. of Wisconsin-Madison, Madison, WI, USA — A conventional reflectometer is used to measure plasma density fluctuations in the HSX stellarator. Two sources with a fast switch allow us to sweep the probing beam frequency in the bandwidth of (14.5 - 26.5) GHz that corresponds to the wave reflection into the plasma core. In experiments at 0.5 T a low-frequency coherent mode was detected in the quasi-symmetric configuration. In high density plasmas at 1 T we do not see this mode, while the electron temperature is found to be highly peaked in the plasma core. The ITB formation may be due to suppression of density fluctuations by the radial electric field shear. A comparison of the reflectometer data in various regimes shows little difference in the frequency spectra between plasmas with and without the ITB. Results of the modeling on density fluctuations from the reflectometer data will be discussed. The reflectometer is being upgraded to a Doppler version to provide information on plasma rotation than can be compared with CXRS measurements. The design of the Doppler reflectometer will also be presented.

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Konstantin Likin

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