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Preliminary study of HHFW driven plasma fluctuation measurement using FIReTIP in NSTX[1] J. KIM, POSTECH, K.C. LEE, UC Davis, C.K. PHILLIPS, R. KAITA, PPPL, C.W. DOMIER, N.C. LUHMANN, JR., UC Davis, H. PARK, M. CHO, W. NAMKUNG, POSTECH — NSTX is equipped with an FIR interferometry (FIReTIP) and high k scattering system, which can monitor high frequency density fluctuations driven by RF waves. High Harmonic Fast Wave (HHFW) fields drive localized density fluctuations at 30 MHz that may be detectable by this system. The electronics for 30 MHz signal observations were designed and are being upgraded for FIReTIP. The location of the observed fluctuations will be compared to predictions from the HHFW version of the TORIC code, which solves the Maxwell equations in toroidal geometry, using a quasilocal approximation that retains large $k_{perp}\rho_i$ effects but assumes that only the HHFW fields are excited. The RF induced density perturbation in NSTX discharges heated by the 30 MHz HHFWs will be localized within the field distribution predicted by the TORIC code. In this presentation, the conceptual design including experimental development and the preliminary results of simulation will be presented.

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