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New opportunities of physics study by FIReTIP and Poloidal Scattering system on NSTX-Upgrade[1] K.C. LEE, C.W. DOMIER, N.C. LUHMANN, JR., UC Davis, R. KAITA, PPPL — A reconfiguration of the Far Infrared Tangential Interferometer/Polarimeter (FIReTIP) and the high-k scattering systems are planned for the National Spherical Torus Experiment (NSTX) Upgrade (FY2013-14). The FIReTIP upgrade design comprises three channels: a core channel ($R_T \sim 40$ cm) for the main density monitoring and real time density feedback control, a middle channel ($R_T \sim 90$ cm) for HHFW heating localization studies and MHD studies including Alfven Eigen modes, and an edge channel ($R_T \sim 140$ cm) for the boundary electron density fluctuation measurements which are important for H-mode and pedestal physics studies. The high-k scattering system will be reconfigured as a poloidal scattering system for measurement of k-spectra relevant to ETG modes. Details of the reconfiguration plan will be presented with recent physics results, together with a discussion of the physics areas to be addressed with the upgraded diagnostic tools.

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