

Abstract Submitted
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Diagnostic Upgrades for NSTX-U¹ CALVIN DOMIER, JON DAN-
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STRATTON, Princeton Plasma Physics Laboratory, NEVILLE C. LUHMANN,
JR., University of California, Davis — UC Davis is currently funded to develop three
plasma diagnostics for NSTX-U. An 8-channel 693 GHz poloidal high-k scattering
system to study high-k electron density fluctuations on NSTX-U. The probe beam
is launched from Bay G towards Bay L where optics collect radiation at 8 simulta-
neous scattering angles ranging from 2 to 15. This yields measurement of poloidal
wavenumbers from 7 cm⁻¹ to \approx 40 cm⁻¹, while translatable optics allow placement
of the scattering volume from $r/a = 0.1$ out to the pedestal region. The second is
the Far-Infrared Tangential Interferometer/ Polarimeter (FIRETIP) system, which
will provide real-time density feedback control for the Real-Time Control and Pro-
tection (RTCP) system. The third is a 54 channel (5 poloidal, 4 radial) microwave
imaging reflectometer (MIR) system employing system-on-chip (SoC) transmitter
and receivers and sharing the same Bay L port as high-k scattering. Details of the
diagnostics, including installation and commissioning schedules, will be presented.

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