

The Need of a Suite of Synthetic Diagnostics for NSTX-Upgrade

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- To facilitate the comparison of turbulence measurements and theory/simulation
 - Identify observed instabilities
 - Validate theories/models
- To assist further diagnostic development, e.g. PCI
- Need for a suite of core and edge diagnostics
 - BES, High-k scattering, PCI and reflectometry
 - Polarimetry and magnetic pick-up coils
- Develop new models (High-k scattering, magnetic pick-up coils), apply/migrate existing models/codes to NSTX-U (BES, PCI, reflectometry, polarimetry)
- Need a good interface with numerical codes
 - Standard input file for turbulence data, allowing easy coupling with different numerical codes, e.g. GYRO, GS2, GTS, XGC, BOUT++