

UC Irvine's Collaboration Proposal: Fast-ion Diagnostics and Physics at MAST-U

- **One Solid State Neutral Particle Analyzer (SSNPA) assembly will be installed on MAST-U to study fast ion confinement and fast ion driven instabilities.**
 - A port is reserved for SSNPA. It views the on-axis beam radially.
 - The SSNPA hardware including vacuum interface, electronics and digitizers was shipped to MAST-U in August 2017.
 - The system will be installed on MAST-U during the short vent period in early 2018
- **Provides expert advice on data interpretation & on the design of v-FIDA.**
 - A tangentially-viewing FIDA diagnostic has been installed on MAST.
 - A port with suitable views for vertically-viewing FIDA diagnostic is available, but it is not currently funded. A graduate student from University of York will work on FIDA for his Ph.D thesis project.
- **Orbit-based inversion of fast ion distribution function.**
 - Use available data from all fast ion diagnostics to infer fast ion distribution function.
- **Propose and execute fast ion physics experiments, support SciDAC validation.**