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An Overview of NSTX-U Diagnostics

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NSTX-U will, because of its low aspect ratio and unique capabilities, be a critical element in worldwide magnetic fusion energy research. It has 6MW of high harmonic fast wave heating at 30MHz, 10MW of neutral beam heating, lithium evaporation capability for wall conditioning, and coils for control of resistive wall modes.

An extensive set of diagnostics is planned for multiple purposes: to enable plasma operation, to obtain data in support of the project's role as an international user facility, and to support NSTX-U collaborators.

The existing, and planned, NSTX-U diagnostics are described in the presentation. Those required for operation or of interest to multiple science groups are described in detail, including expected performance and results from initial NSTX-U experiments. Summary descriptions of the remaining diagnostics are provided. Engineering considerations in the design of NSTX-U diagnostics, particularly those unique to this device, are discussed.

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Eligible for student paper award?

No

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