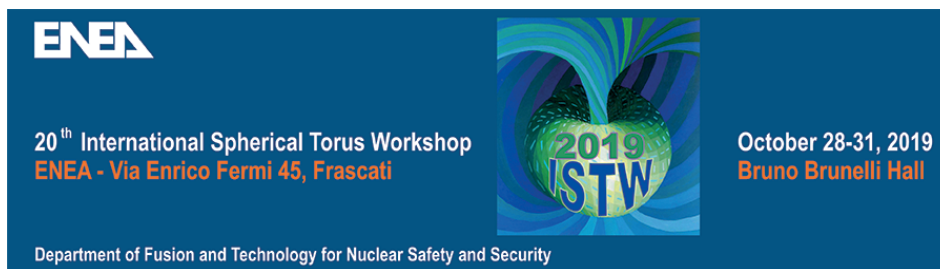


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NSTX-U: Recent Results and Plans

Wednesday, 30 October 2019 09:00 (35 minutes)

NSTX-U: Recent Results and Plans

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After an 18-month sequence of key reviews, the NSTX-U Recovery Project was recently approved to initiate procurement and fabrication of components as a step towards completion of the Recovery and commencement of physics operations in the 2021-2022 time frame. The elements of the Recovery, which include new PF coils, new support structure including center stack casing, redesign of graphite tiles with improved heat flux handling capabilities, will insure highly reliable operations. The first few years of operation will focus on two primary goals: assessing ST performance at up to 6 times lower collisionality than could be achieved in NSTX, and development of fully non-inductively sustained plasmas for pulse lengths up to 5 s. The longer-term goal is the development of a full toroidal deployment of liquid lithium divertor modules to assess this transformative solution to handling the high heat fluxes expected in next-step devices. During the Recovery outage, research has targeted topics from NSTX/NSTX-U data or through collaborations on other devices that could facilitate the achievement of the NSTX-U research goals once operation starts. These topics include understanding mechanisms that control pedestal, core and fast ion transport and stability, and developing associated predictive models, developing real-time control capabilities and wall conditioning. This presentation will describe the recent progress in this research.

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