

Abstract Submitted for the Forty-Seventh Annual
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Category Number and Subject: 5.6.2 DIII-D tokamak

Theory Experiment

New Physics Capabilities for the DIII-D National Fusion Facility,* R.L. Boivin for the DIII-D team, *GA* – New physics research opportunities will be provided by upgrades and modifications to several DIII-D systems. The DIII-D EC system is being extended to six 10 s, 1 MW gyrotrons, and will provide the needed off-current profile control for sustaining steady state advanced tokamak discharges and continued research in active stabilization of NTMs. One beamline is being changed from co- to counter-injection, allowing new research in a number of areas using co- plus counter-beam injection: QH-mode, RWM stabilization at low rotation, modulated NTM stabilization, transport studies, etc. A modification of the lower divertor will enable cryopumping and density control in lower single null and high triangularity double null divertor plasmas: density control in higher triangularity plasmas will facilitate the development of high beta steady-state scenarios, and will enable transport and boundary research in ITER relevant collisionalities. In parallel with these three major enhancements, other systems, including diagnostics, are being improved. Details of new capabilities and the research they will enable will be discussed.

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