

Abstract Submitted
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Real-Time Plasma Control During KSTAR First Plasma¹ N.W. EIDIETIS, Oak Ridge Institute for Science Education, S.H. HAHN, Y.K. OH, NFRI, D.A. HUMPHREYS, A.W. HYATT, J.A. LEUER, M.L. WALKER, General Atomics — Real-time control of Korea Superconducting Tokamak Advanced Research (KSTAR) discharges was successfully demonstrated during the KSTAR coil commissioning and first plasma period of May-June 2008. KSTAR, located at the National Fusion Research Institute (NFRI) in Daejeon, South Korea, is designed to explore steady-state, high-performance tokamak plasmas. The KSTAR plasma control system (PCS) was developed in a collaboration between General Atomics and NFRI, and derives from the PCS originally developed for DIII-D and currently in use at NSTX, MAST, EAST, Pegasus, and MST. A suite of electromagnetic analysis and plasma control design tools, closely integrated with the KSTAR PCS, were used extensively to support the startup campaign. Initial coil commissioning was completed successfully, utilizing the power supply voltage and current feedback algorithms. Plasma current, density, and rudimentary control of major radius was demonstrated during startup discharges.

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