

Abstract Submitted
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Advanced Diagnostic Requirements for the DIII-D Tokamak¹ R.T. SNIDER, K.H. BURRELL, General Atomics — A primary focus of the DIII-D advanced tokamak research program is to seek the ultimate potential of the tokamak as a magnetic confinement system. Achieving this potential involves optimizing the plasma cross-sectional shape, current density, and pressure profiles for stability to MHD modes while simultaneously controlling the current density, pressure and radial electric field profiles to minimize the cross field transport of plasma energy. The development of the scientific understanding underlying the simultaneous, nonlinear optimization of shape, current, pressure, and electric field profiles to meet multiple goals is an ambitious goal with potentially very high payoff. Diagnostic measurements play a crucial role in this research both for developing predictive models and for serving as sensors for real-time feedback control. Some of the measurements that are needed are detailed edge current profiles, measurements of electron transport, and measures of fluctuation driven transport. In this paper we will discuss the diagnostic measurement needs for advancing the tokamak concept, possible techniques and plans for diagnostics and diagnostic development on the DIII-D tokamak.

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Prefer Oral Session
 Prefer Poster Session

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Special instructions: 1st poster in Diagnostics Session (before Makowski)

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