

Abstract Submitted
for the DPP98 Meeting of
The American Physical Society

Sorting Category: 5.10 (theoretical)

Feasibility of Real-Time MHD Tearing Mode Identification in DIII-D¹ D.H. EDGELL, J.S. KIM, FARTECH, Inc., J.R. FERRON, E.J. STRAIT, General Atomics — Automated real-time identification and stabilization of MHD tearing modes will likely be required in future large tokamak experiments. An automated method of mode identification, by fitting Mirnov fluctuation data to numerical predictions, has been developed at DIII-D. Two different fitting schemes give similar results. The numerical and hardware requirements for real-time application of the techniques will be presented. The computational requirements of both techniques can be reduced such that real-time mode identification during a tokamak discharge should be possible with a time lag no greater than a few msec using commercial-off-the-shelf components. The MHD phase and dominant (m, n) could be integrated into a real-time tearing mode stabilization scheme, such as using phased ECCD to drive current at the $q = m/n$ surface of the instability.

¹Work supported by U.S. DOE-SBIR Grant DE-FG03-97ER82383 and DOE Contract DE-AC03-89ER51114.

Prefer Oral Session
 Prefer Poster Session

D.S. Edgell
edgell@gav.gat.com
FARTECH, Inc.

Special instructions: DIII-D Poster Session I (transport, turbulence, & stability), immediately following Kim

Date submitted: July 22, 1998

Electronic form version 1.3