

Abstract Submitted
for the DPP05 Meeting of
The American Physical Society

Resistive Wall Mode Internal Structure Identification by Soft X-Ray Contrast Enhancing Technique¹ I.N. BOGATU, Y. IN, FARTECH, Inc., THRUST 4 OF THE DIII-D TEAM — The understanding of the internal structure of the slowly growing resistive wall mode (RWM) is important for improved identification and control. The real-time RWM stabilization is a critical topic for advanced tokamak regimes, for example, in ITER. During an early RWM evolving stage it is difficult to distinguish the RWM-associated perturbations from equilibrium changes. But a newly-developed soft x-ray contrast enhancing technique (SXR CET) was shown to be sensitive to the evolving RWM. Based on time or spatial derivative of signals, the SXR CET is a useful diagnostic to reveal RWM internal structures in conjunction with magnetic sensors. Defining the requirements for an ideal SXR CET, we present the analyzed results of SXR CET using DIII-D experimental data. The SXR CET correlations with magnetic field perturbation, electron temperature, and current density profile are presented. We also evaluate the possibilities of SXR CET application to discriminate rotating and non-rotating plasmas for understanding of the slowly growing RWM.

¹Work supported by US DOE under DE-FG02-ER84184 and DE-FC02-04ER54698

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Date submitted: 21 Jul 2005

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