

DIAGNOSTICS FOR THE DIII-D RADIATIVE DIVERTOR*

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This paper reviews the design of new diagnostics and modifications to existing diagnostics in preparation for the DIII-D radiative divertor experiments scheduled to begin in early 1997. We review a basic set of diagnostics that are needed to demonstrate the reduction of divertor heat loading and radiative dissipation of energy within the divertor. This will include IR cameras, bolometry, foil bolometers, and Langmuir probes. Within the limits of available funding, we will implement a supplemental set of instruments which provide a more detailed understanding of the underlying physical processes. Many existing diagnostics require only re-aiming to provide proper coverage of the initial 23 cm long divertor plasma configuration (X-point to floor distance). Other diagnostics need extensive reconfiguration using in-vessel fiber-optic bundles or high power laser mirrors. The new divertor baffle panels that create the 23 cm slot provide a protective shelf for diagnostic hardware, but their water cooling channels allow only limited views of the divertor region. The successful resolution of the design and implementation of these diagnostic modifications is dependent on a strong coordination between GA and its many diagnostic collaborators.

*Work supported by U.S. DOE Contract Nos. DE-AC03-89ER51114 and W-7405-ENG-48.

ABSTRACT SUBMISSION FORM 16th IEEE/NPSS Symposium on Fusion Engineering

September 30 — October 5, 1995
Champaign, Illinois, USA

Paper Title: **Diagnostics for the DIII-D
Radiative Divertor**

Technical Topic Number:

Keywords:

- (1)
- (2)
- (3)

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