

DIII-D Research for Burning Plasmas in ITER and Beyond, E.J. Strait and T.S. Taylor, General Atomics, San Diego, California.

Introduction

The research program of the DIII-D tokamak at General Atomics is aimed at providing the scientific basis for optimization of the tokamak approach to fusion energy production [1]. The International Thermonuclear Experimental Reactor (ITER), for which a site was recently selected, will be a crucial next step in development of fusion energy. ITER will be the first “burning plasma” device, in which much of the heating of the fuel is provided by the fusion reaction itself. The DIII-D device is very similar in configuration to ITER but at about one-quarter the size (Fig. 1), making it a “scale model” in which scientific, engineering, and control issues for ITER can be addressed before the larger machine begins operation.

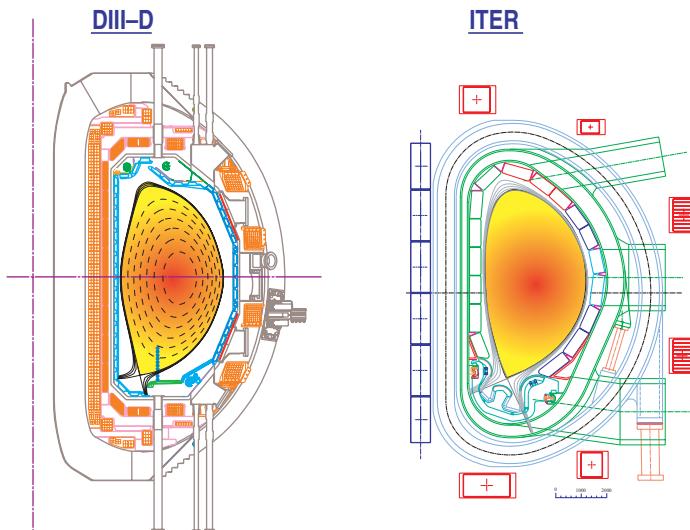


Figure 1. Cross-sections of DIII-D (major/minor radius = 1.7/0.6 m) and ITER (major/minor radius = 6.2/2.0 m), showing similar shapes and divertor geometries.