

Plasma instability analysis and control in Texas Helimak

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Texas Helimak is a toroidal magnetic confinement device in a configuration known as *Simple Magnetic Tori* (SMT). Its simple geometry and wide radial region provide plasma density and temperature conditions analogous to those in the edge and *Scrape-Off Layer* (SOL) of tokamak devices. This allows for the evaluation of different mechanisms for effectively controlling turbulence. One such mechanism used to reduce turbulence and, consequently, anomalous transport is the modification of the radial electric field profile by imposing an external electric potential (*bias*). This can be achieved by installing an electrode or, as in the case of the Texas Helimak, using a set of plates (referred to as bias plates). In this work, we implement tools for the analysis and interpretation of data obtained through a set of Langmuir probes along the radial coordinate in experiments conducted on the Texas Helimak under different bias conditions to evaluate the effect of bias imposition on turbulence characteristics in the Helimak.

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