

Abstract Submitted
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Diagnosis of Local Plasma Conditions within an ICRF Antenna on DIII-D¹ W.K. BALUNAS, Carnegie Mellon University, R.I. PINSKER, General Atomics, S.J. DIEM, M.C. KAUFMAN, E.A. UNTERBERG, ORNL, A. NAGY, PPPL — One of the three ion cyclotron rf antennas on the DIII-D tokamak is equipped with an extensive set of diagnostics. These instruments, including Langmuir probes, light-gathering lenses, fast neutral pressure gauges (“ASDEX gauges”), and rf voltage probes, are used to study the origins of rf breakdown (“arcing”) in the ICRF antenna. For a given plasma condition, the onset of arcing sets the upper power limit that can be coupled to the discharge. Data is obtained both during vacuum conditioning and during high-power operations with plasma. In addition, some of these instruments are tested during plasma operations without rf power being applied to the array. The information is used to search for correlations between the onset of arcing and local conditions in and around the antenna. The ultimate goal of this work is to enable the coupling of increased rf power levels to the discharge.

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