

Abstract Submitted
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Sorting Category:

Fast Wave Diagnostic for Density and Species Mix¹

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R.I. PINSKER, General Atomics — Because fast Alfvén waves propagate across a plasma at the Alfvén speed, the plasma mass density can be determined through interferometry. In previous measurements on the DIII-D tokamak,² fast waves (*sim*100 MHz, ~ 5 W) were launched from an antenna at the outer midplane, but detection of the signal was hampered by poor sensitivity of the receiving antenna, which was mounted behind protective graphite tiles on the inner wall. Modification of several graphite tiles to act as receiving antennas significantly increased sensitivity. At lower frequencies (~ 25 MHz), fast waves can reflect from the ion-ion hybrid cutoff layer. The position of this layer is sensitive to the ratio of hydrogen to deuterium in the plasma. Receiving antennas on the outer wall will measure the hydrogen concentration through reflectometry. Hydrogen puffing experiments to test the reflectometry diagnostic are planned at the end of the 2000 campaign.

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²H. Ikezi *et al.*, Rev. Sci. Instrum. **68** (1997) 478.

Prefer Oral Session
Prefer Poster Session

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Special instructions: Diagnostics, immediately following K-L Wong

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