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Physics of the Edge Harmonic Oscillation in Quiescent H-Mode Discharges in DIII-D¹ K.H. BURRELL, C.M. GREENFIELD, R.J. GROEBNER, GA, E.J. DOYLE, T.L. RHODES, L. ZENG, G.R. MCKEE, J.C. ROST, DIII-D National Fusion Facility — Quiescent H-mode discharges have significant edge particle transport even in the absence of ELMs owing to the edge harmonic oscillation (EHO).² A key question is whether the EHO density oscillation² is due to a global oscillation of the magnetic structure, as in low toroidal mode number tearing modes, or whether the EHO is more edge localized. A global character would produce a density oscillation whose amplitude peaks where the edge density gradient peaks. Reflectometry and beam emission spectroscopy measurements demonstrate that the density oscillation associated with the EHO is localized about 5-10 mm outside the separatrix, at the foot of the H-mode edge density gradient. This location is inconsistent with the picture of the EHO as a global MHD mode. Changes in EHO character with plasma shape, neutral beam energy and neutral beam direction will be presented.

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²K.H. Burrell, et al., Phys. Plasmas **8**, 2153 (2001).

Prefer Oral Session
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K.H. Burrell
burrell@fusion.gat.com
General Atomics

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