

Abstract Submitted
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**L-H Transition Studies on DIII-D to Determine H-mode Access
for Operational Scenarios in ITER¹** P. GOHIL, T.E. EVANS, M.J. SCHAF-

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— A comprehensive set of L-H transition experiments has recently been performed
on DIII-D to determine the requirements for access to H-mode plasmas in ITER's
first (non-nuclear) operational phase with H and He plasmas, and second (activated)
operational phase with D plasmas. The results from these experiments have revealed
that the H-mode power threshold, P_{TH} : (a) increases with the applied torque for all
3 main ion species (H, He, D); (b) increases with the application of the I-coil current,
which is normally used to induce $n = 3$ resonant magnetic perturbations required for
edge localized mode (ELM) suppression; (c) can be significantly reduced by chang-
ing the plasma geometry; (d) exhibits a weak dependence on the edge electron and
ion temperatures, but shows a strong dependence on the edge toroidal rotation; and
(e) is not significantly affected by the application of magnetic error fields expected
from test blanket module assemblies in ITER.

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