Abstract Submitted
for the DPP08 Meeting of
The American Physical Society

H-mode Power Threshold, Pedestal and ELM Characteristics and Transport in Hydrogen Plasmas in DIII-D[1] P. GOHIL, General Atomics, HYDROGEN PLASMA TASK FORCE TEAM — Comparing the physics of hydrogen plasmas with deuterium plasmas is important for the validation of key issues in plasma physics, such as ion mass dependences. This is vitally important for the first operational phase of ITER, which will use hydrogen plasmas. The issues for hydrogen plasmas include: (a) determining the H-mode power threshold and validating H-mode threshold scaling relations; (b) investigating the pedestal width and ELM characteristics; (c) examining plasma transport and turbulence behavior. Preliminary results with hydrogen plasmas and hydrogen neutral beam injection indicate that the H-mode power threshold is significantly higher than that for deuterium but decreases with decreasing applied beam torque (as seen in deuterium). Because of the power threshold dependence on the input torque, the threshold power for hydrogen plasmas with counter-injected beams is similar to the threshold power for deuterium plasmas with co-injected beams. Results from experiments to investigate issues (a-c) in hydrogen plasmas will be presented.

[1]Work supported by the US DOE under DE-FC02-04ER54698.

P. Gohil
General Atomics

Date submitted: 18 Jul 2008 Electronic form version 1.4