

The H-mode Power Threshold in Hydrogen Plasmas in DIII-D*

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Abstract. In DIII-D, experiments have been performed in hydrogen plasmas to determine the requirement for hydrogen operation in ITER. The H-mode threshold power has been determined to increase with input torque for both hydrogen and deuterium plasmas with the H-mode power threshold for hydrogen plasmas being approximately a factor of 2 greater at zero torque than in comparable deuterium plasmas. The threshold power for hydrogen discharges with full counter current beam injection is roughly the same as the threshold power for deuterium discharges with co-current beam injection. The plasma geometry also influences the power threshold through the vertical distance between the X-point and the divertor surface.

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