

INCREASING THE BETA LIMIT DUE TO NEOCLASSICAL TEARING MODES BY RAISING THE AXIAL SAFETY FACTOR $q(0) > 1$

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ABSTRACT: Resistive neoclassical tearing modes (NTM) can cause the stable beta value in long pulse, high confinement plasmas to fall significantly below that predicted by ideal theory. The NTM islands which degrade confinement and limit beta are induced and sustained by helically perturbed bootstrap current. A combination of shaping and q-profile modification is used in the DIII-D tokamak to increase this beta limit.

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