n Invited Paper
96 Meeting of
Physical Society

Discharges in the DIII–D Tokamak[1]

California 92186-9784

he promise of enhanced fusion performance in advanced toka-
nal shear, provides stability to short wavelength modes over a
sport barrier with strong pressure peaking. However, stability
f the improved confinement which results. Modification of the
ng of the stability limits in NCS discharges, has led to record
culations for NCS plasmas show that the beta limit depends
e. Resistive calculations for NCS plasmas in DIII–D reveal a
uble tearing mode, with beta limits below the ideal limit. The
s in the negative shear region, and its stability limit depends
scharge shaping. Rotational shear can raise the stability limit
ange mode. Discharges with strongly peaked pressure profiles
bility limit but near the resistive limit. Core localized bursts of
the resistive interchange mode. However, the global nature of
precursor all suggest that the disruption arises from coupling
deal modes. On the other hand, discharges where the pressure
n $\beta_{\rm N} > 4$, consistent with both ideal and resistive calculations.
ocalized kink modes, driven by the edge pressure gradient and
e in DIII–D has been achieved in discharges with a relatively
h of which contribute to stability of the resistive interchange
imits with broad pressure profiles persist in low triangularity,
D-T fusion experiments in JET and ITER.

act No. DE-AC03-89ER51114.