

Abstract Submitted
for the DPP16 Meeting of
The American Physical Society

Equilibrium and Instability near the Separatrix in Tokamaks

DENG ZHOU, Institute of Plasma Physics, CAS, China — A local equilibrium model near the separatrix with up-down symmetric double nulls is developed in this work. Shaping features like elongation, triangularity and Shafranov shift of the reference magnetic surface are taken into account in the model. The poloidal magnetic field is determined as done in Ref. [1]. The model can be used to study the effect of separatrix on the localized plasma modes such as peeling-ballooning modes near the tokamak edge region. As the first application we use it to calculate the Mercier index determining interchange modes. [1] Weihong Yu, Deng Zhou, and Nong Xiang, A novel local equilibrium model for shaped tokamak plasmas, *Phys. Plasmas* 19, 072520 (2012) [2] R. L. Miller, M. S. Chu, J. M. Greene, Y. R. Lin-liu, and R. E. Waltz, *Phys. Plasmas* 5, 973 (1998).

Nong Xiang
Institute of Plasma Physics, CAS, China

Date submitted: 07 Sep 2016

Electronic form version 1.4