

Abstract Submitted  
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**Particle transport in the vicinity of divertor separatrix** Y. NISHIMURA, J.C. LYU, Institute of Space and Plasma Sciences, National Cheng Kung University — Guiding center orbit following code in a tokamak edge geometry is developed which connects straight field line coordinate system (away from the separatrix) and Cartesian coordinate system (in the vicinity of the separatrix) smoothly in the equation of motion.<sup>1</sup> In the presence of magnetic stochasticity,<sup>2 3</sup> charged particles in the closed magnetic field line region can be transported to the open field line region and then hit the divertor plates within several toroidal transits. Our preliminary studies suggest finite heat load both on the inner and outer divertor plates. Energy spectrum of particles reaching the plates (which differs from that of the bulk plasma) as function of imposed magnetic stochasticity, is analyzed. This work is supported by Taiwan MOST 104-2112-M-006-019.

<sup>1</sup>Coordinate transformations  $x = x(\psi, \theta)$ ,  $y = y(\psi, \theta)$ , and  $\psi = \psi(x, y)$ ,  $\theta = \theta(x, y)$  are obtained by solving magnetic field line equation.

<sup>2</sup>H.Takahashi, E.D.Fredrickson *et al.*, Nucl. Fusion **44**, 1075 (2004).

<sup>3</sup>T.E.Evans, R.A.Moyer *et al.*, Nature Physics **2**, 419 (2006).

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