

Abstract Submitted  
for the DPP11 Meeting of  
The American Physical Society

**Guiding center orbit following calculation of  $\alpha$  particles in tokamaks** B. HUANG, Y. NISHIMURA, Institute of Space, Astrophysical, and Plasma Sciences, National Cheng Kung University — Guiding center orbit following code is developed to study  $\alpha$  particle transport in tokamak plasmas. The equation of motion is derived from guiding center Lagrangian<sup>1</sup> in a flux coordinate system incorporating electromagnetic perturbations. As an preliminary study, toroidal ripple induced transport<sup>2</sup> is investigated.

<sup>1</sup>R.G.Littlejohn, J. Plasma Phys. **29**, 111 (1983).

<sup>2</sup>K. Tani, M.Azumi, H.Kishimoto and S.Tamura, J. Phys. Soc. Japan **50**, 1726 (1981).

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Date submitted: 07 Sep 2011

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