

Abstract Submitted  
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**Turbulence Induced Diffusion in Conjunction with Gyrocenter Shift** K.C. LEE, University of California at Davis — A new concept of turbulence transport and diffusion coefficient based on the theory of gyrocenter shift[1-2] are derived from the microscopic  $\tilde{E} \times B$  (E is electric field and B is magnetic field) drifts at the boundary of fusion device. It is found that the turbulence flow generated by the ion-neutral collisions induces diffusive transport with the saturation condition where the turbulence induced charge dilation compensates the gyrocenter shift current. The calculations with conventional and modified Boltzmann relations are compared with experiments. The effects of turbulence induced diffusion and the Reynolds number of magnetized plasma to the high confinement mode transitions will be discussed. [1] K. C. Lee, Phys. Plasmas, **13**, 062505 (2006), [2] K. C. Lee, Phys. Rev. Lett. **99**, 065003 (2007)

K. C. Lee  
University of California at Davis

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