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Electron transport analysis in TCV WENDELL HORTON, JUHYUNG KIM, Institute for Fusion Studies, University of Texas at Austin, ELINA ASP, L. PORTE, Ecole Polytechnique Federale de Lausanne, Centre de Recherches en Physique des Plasmas Association Euratom-Confederation Suisse, CH-1015 Lausanne — We have investigated the turbulent electron transport in the four current H-mode phases of the TCV discharge 29892 with high-power ECH heating. On ion inertial length scale, we break down the dynamics into collisionless wave, collisional drift wave and trapped electron mode(TEM) (Horton, Phys. Fluids 19, 711, 1976). The transition from drift wave to trapped electron mode is observed in our calculations, and the electron temperature gradient destabilizes the TEM. We find that at the mid-radius, the TEM growth rate are strongly dependent on the collisionality whereas at the outer region, no collisionality dependence is observed. we also analyze the ETG transport with well-known theory based χ_e-models. Finally we show quasi-2D pseudo spectrum simulations for several (r, t) points and time slices for the TEM model and the ETG model. Comparison suggests that the ETG mode is a better candidate for the electron transport in the TCV discharge.

Juhyung Kim
Institute for Fusion Studies, University of Texas at Austin

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