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Finite Plasma Beta Scaling of ETG Induced Turbulent Transport in Large Laboratory Plasma PRABHAKAR SRIVASTAV, Institute for Plasma Research, Gandhinagar, India, RAMESWAR SINGH, CASS, University of California, San Diego, CA 92093, United States of America, LALIT MOHAN AWASTHI, AMULYA KUMAR SANYASI, PANKAJ KUMAR SRIVASTAVA, RITESH SUGANDHI, Institute for Plasma Research, Gandhinagar, India, RAGHVENDRA SINGH, Advance Technology Center, NFRI, Republic of Korea
— Recent success on unambiguous demonstration of excitation of Electron Temperature Gradient (ETG) turbulence in Large Volume Plasma Device (LVPD) has motivated us to investigate turbulent transport induced by ETG turbulence. We investigated particle and heat transport, and compared both electrostatic and electromagnetic components of it with theoretical estimates. We found that convective part is directed radially inward whereas conductive heat flux is radially outward. The EM flux is found finite and non- zero against predicted zero for slab ETG model but its magnitude is found extremely small compared to ES flux. We varied plasma beta between (β~0.01- 0.4) and observed that despite reduction in density fluctuations with increasing beta, the contribution to particle flux increases, which is surprising. For this, we carried out investigations for phase angle and temperature fluctuations. Detailed results on plasma beta modifications to phase angle and temperature fluctuations and contribution of ETG induced turbulence on plasma transport will be presented in the conference.

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