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Kinetic stability analysis on electromagnetic filamentary structure[1] WONJAE LEE, SERGEI KRASHENINNIKOV, Univ of California - San Diego — A coherent radial transport of filamentary structures in SOL region is important for its characteristics that can increase unwanted high fluxes to plasma facing components. In the course of propagation in radial direction, the coherency of the filaments is significantly limited by electrostatic resistive drift instability (Angus *et al.*, 2012). Considering higher plasma pressure, which would have more large impact in heat fluxes, electromagnetic effects will reduce the growth rate of the drift wave instability and increase the instabilities from electron inertial effects. According to a linear stability analysis on equations with fluid approximation, the maximum growth rate of the instability from the electron inertia is higher than that of drift-Alfvén wave instability in high beta filaments such as ELMs. However, the analysis on the high beta filaments requires kinetic approach, since the decreased collisionality will make the fluid approximation broken. Therefore, the kinetic analysis will be presented for the electromagnetic effects on the dynamics of filamentary structures.

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