

Abstract Submitted
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Drift and ion sound instabilities of the magnetic field aligned shear flow with inhomogeneous ion temperature¹ VOLODYMYR MYKHAYLENKO, Research Institute of Computer, Information and Communication, Pusan National University, Busan 609-735, S. Korea, HAE JUNE LEE, Department of Electrical Engineering, Pusan National University, Busan 609-735, S. Korea, VOLODYMYR S. MYKHAYLENKO, Institute of High Technology, V.N. Karazina Kharkiv National University, Ukraine, MARK KOEPKE, Department of Physics, West Virginia University, Morgantown, West Virginia, USA — The effects of the ion temperature gradient across the magnetic field on the development of the drift and ion-sound shear flow modified and shear flow driven instabilities of the magnetic field aligned shear flow are studied analytically and numerically on the ground of a kinetic approach. The cases of cold and hot ions with respect to electrons are considered. Dominant excitation mechanisms (ion-kinetic, electron-kinetic, and hydrodynamic) of each instability is determined in different domains of the wave number space, velocity shearing rate and temperature ratio of the ions and electrons. Applications of the developed theory to fusion and space plasmas are given.

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