

P4.4013 Instability Threshold of Alfvén Waves in a Non-Ideal

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See full abstract here:

<http://ocs.ciemat.es/EPS2019ABS/pdf/P4.4013.pdf>

A system of the modified quantum fluid equations has been used for the investigation of Alfvén wave dispersion properties in a non-ideal astrophysical plasma medium. The dispersion relation is derived by perturbation method in the presence of dissipative effects, self-gravitational, quantum potentials and electromagnetic forces. The results show that the presence of the resistivity and quantum force can lead to the instability of the system. The instability of the waves is increased with decreasing in the wavelengths. Although, quantum aspects play an important role in the short wavelengths, nevertheless, in the long wavelengths, quantum effects are negligible. The assumptions and results of the present study are one of the fundamental interests in the study of astrophysical plasmas such as molecular-clouds.

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