

Abstract Submitted
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Non-thermal Dupree diffusivity and shielding effects on atomic collisions in Lorentzian turbulent plasmas¹ MYOUNG-JAE LEE, YOUNG-DAE JUNG, Hanyang University — The influence of non-thermal Dupree turbulence and the plasma shielding on the electron-ion collision is investigated in Lorentzian turbulent plasmas. The second-order eikonal analysis and the effective interaction potential including the Lorentzian far-field term are employed to obtain the eikonal scattering phase shift and the eikonal collision cross section as functions of the diffusion coefficient, impact parameter, collision energy, Debye length and spectral index of the astrophysical Lorentzian plasma. It is shown that the non-thermal effect suppresses the eikonal scattering phase shift. However, it enhances the eikonal collision cross section in astrophysical non-thermal turbulent plasmas. The effect of non-thermal turbulence on the eikonal atomic collision cross section is weakened with increasing collision energy. The variation of the atomic cross section due to the non-thermal Dupree turbulence is also discussed.

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