

Electron-ion bremsstrahlung process in turbulent plasmas

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The effects of plasma shielding and turbulence on the electron-ion bremsstrahlung spectrum are investigated in turbulent plasmas. The effective potential taking into account the plasma shielding and the plasma turbulence through the diffusion effect with the impact parameter analysis is employed in order to obtain the bremsstrahlung radiation cross section as a function of the Debye length, diffusion coefficient, impact parameter, projectile energy, photon energy, and thermal energy in turbulent plasmas. It is found that the bremsstrahlung radiation cross section decreases with increasing thermal energy for small impact parameters and, however, increases with an increase of the diffusion coefficient. It is also found that the plasma shielding effect enhances the bremsstrahlung radiation cross section for small thermal energies. In addition, it is found that the plasma shielding effect on the bremsstrahlung cross section in turbulent plasmas increases with an increase of the diffusion coefficient and, however, decreases with an increase of the thermal energy.