

Electron scattering in realistic solar wind plasma

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Electron scattering in solar wind plasma by whistler mode waves has been extensively studied in one and two electron component plasma [1-4]. However, In real case scenario solar wind consists of three component plasma, so called core-halo-strahl electrons. Simulation regarding the core-halo-strahl plasma is studied taking the simplest Maxwellian velocity distribution (VDF), but the spacecraft observations [5] show the actual VDF is different from the usual Maxwellian. This paper presents the realistic modelling of solar wind plasma motivated by the spacecraft observations of Wind, Parker Solar Probe [5]. The linear dispersion with the combination of different VDFs observed in solar wind plasma is analysed with temperature. The full nonlinear simulation using Vlasov-Maxwell system of equations is performed. The phase space portrait of the nonlinearly evolved system will be presented. The electron scattering by whistler and its quantification will also be presented [6].

References

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