

Particle-In-Cell, fully kinetic scale, modelling of solar radio bursts, based on non-gyrotropic and plasma emission mechanisms (Invited talk)

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Abstract

Basic physics of the radio emission mechanisms of solar type III bursts will be reviewed. A case will be made for alternatives to plasma emission, such as non-gyrotropic electron beam [1-3]. Further self-consistent particle-in-cell simulations of fundamental and harmonic radio plasma emission mechanisms will be presented [4]. Also, particle-in-cell simulations of the relaxation of electron beams in inhomogeneous solar wind plasmas [5] will presented, alleviating the problem of the beams travelling large interplanetary distances without experiencing quasilinear relaxation.

[1] D. Tsiklauri, Phys. Plasmas 18, 052903 (2011)

[2] H. Schmitz, D. Tsiklauri, Phys. Plasmas, 20, 062903 (2013)

[3] M. Skender, D. Tsiklauri, Phys. Plasmas 21, 042904 (2014)

[4] J.O. Thurgood, D. Tsiklauri, Astron. Astrophys. 584, A83 (2015)

[5] J.O. Thurgood, D. Tsiklauri, J. Plasma Phys. vol. 82, 905820604 (2016)