Abstract Submitted
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Hybrid simulations of ion acceleration at shocks DAMIANO CAPRIOLI, Princeton University — I present the results of large hybrid (kinetic ions - fluid electrons) simulations of particle acceleration at non-relativistic collisionless shocks. Ion acceleration efficiency and magnetic field amplification are investigated in detail as a function of shock inclination and strength, and compared with predictions of diffusive shock acceleration theory. In particular, I discuss how ions are injected in the acceleration process, also outlining a minimal model able to reproduce spectrum and normalization of the supra-thermal particles; such a model bridges the gap between thermal (MHD) and non-thermal (kinetic) particles. Finally, I outline the observational counterparts of such a theory of ion acceleration in supernova remnants and heliospheric shocks.

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