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Kinetic effects and their role on the properties of magnetized shocks ANNE STOCKEM, LUIS O. SILVA, IPFN, Instituto Superior Tecnico, Lisbon, Portugal, RICARDO A. FONSECA, 1 DCTI, ISCTE - Lisbon University Institute, Portugal, 2 - IPFN, Instituto Superior Tecnico, Lisbon, Portugal — The formation and generation of shocks is a topic of broad interest in many fields of physics, but the role of the kinetics effects and the properties of the particle distribution across the shock front have not been explored in detail. Using particle-in-cell simulations to study electron-positron magnetized collisionless shocks, generated from a reflecting wall in the presence of an initially perpendicular magnetic field, we explore the features of the particle distribution in the upstream, downstream, and shock transition region. In particular, we identify deviations from a Maxwellian distribution. The impact of these deviations on the shock properties (shock velocity, jump conditions) are also examined analytically. The relevance of these results for astrophysical shocks is also discussed.

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