

Abstract Submitted  
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**Radiation emission in electron/proton Weibel scenarios** J.L. MARTINS, S.F. MARTINS, R.A. FONSECA, L.O. SILVA, GoLP / Instituto de Plasmas e Fusao Nuclear, Instituto Superior Tecnico, Portugal — The Weibel instability is common in astrophysical and laboratory scenarios. The features of the radiation associated with the electrons dynamics in such scenarios are relevant for the interpretation of astrophysical observations and of future experiments. We performed 3D PIC simulations with OSIRIS 2.0 to explore scenarios where Weibel turbulence occurs. We leverage on the code particle tracking feature to determine the spectral features of the radiation using a post-processing code. We compare scenarios with streaming electron/positron plasmas versus scenarios with electrons/protons. We focus on the evolution of the spectral features of the radiation when going from the initial growing stage of the instability where electron filamentation occurs, to a time-scale of the order of the inverse of the ion plasma frequency. At these later times, the filamentation of the ions leads to a change in the spatial scale of the electron dynamics. This translates into a broadening of the spectrum peak. Our results are compared with a theoretical model for the temporal evolution of the filamentary structure.

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