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**Radiation from electrons in magnetic field turbulence astrophysical scenarios** JOANA L. MARTINS, SAMUEL F. MARTINS, EDUARDO P. ALVES, RICARDO A. FONSECA[1], LUIS O. SILVA, GoLP/Instituto de Plasmas e Fusao Nuclear - Laboratorio Associado, Instituto Superior Tecnico, Lisboa, Portugal
— Radiation emission from gamma-ray bursts is a hot topic in astrophysics. Both the Weibel and the Kelvin-Helmoltz instabilities have been proposed as mechanisms involved in the generation of magnetic fields in turbulent scenarios relevant to this context. In this work we explore scenarios of Weibel and Kelvin-Helmoltz generated turbulence through 3D particle-in-cell (PIC) simulations performed with OSIRIS 2.0. We analyze the evolution of the magnetic field and the electron dynamics and determine the spectrum of radiation emitted by these using a post-processing diagnostic. The temporal evolution of the radiation spectrum from these scenarios will be presented and compared. Initial results indicate that though the spectra are similar (increasing up to a maximum and then decreasing at higher frequencies), the detailed features are not the same. Results suggest that the decrease at high frequencies obeys a broken power law in the case of the Weibel with a steeper descending slope than in the Kelvin-Helmoltz scenario.

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