## Hungarian-German WE-Heraeus Seminar



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## Synchrotron radiation extension for PIConGPU

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The poster presents an extension for the Particle-in-Cell (PIC) simulation code, incorporating Quantum Electrodynamic Synchrotron Radiation effect to enhance the simulation of plasma phenomena. PIConGPU, a highly scalable and open-source 3D PIC code, is employed to model complex interactions in plasma physics. The implemented algorithm approximates radiation by calculating photon emission probabilities using theoretical framework of synchrotron radiation. Later the extended PIC code is used to predict the X-ray radiation created by an accelerated electron bunch in Laser Wakefield Accelerator. This work aims to provide a comprehensive toolkit for simulating and analyzing high-energy plasma interactions, contributing to advancements in small electron accelerators.

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