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Latest algorithmic advances in the Exascale Particle-In-Cell code WarpX

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The electromagnetic Particle-In-Cell (PIC) code WarpX has been developed within the the U.S. Department of Energy's Exascale Computing Project toward the modeling of plasma accelerators for future high-energy physics colliders on Exascale Supercomputers. We will present the latest algorithmic advances that were developed for first-principles modeling of plasma-based accelerators with higher efficiency. We will also present the latest developments in the application of WarpX'mesh refinement capabilities to the modeling of ion motion in a plasma accelerator. Future plans will also be presented and discussed.

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