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Opportunities and Issues with the Unitary Particle Pusher

Thursday, 10 November 2022 14:00 (15 minutes)

By using the spinor representation of four-vectors, it is possible to write a simple expression for the momentum change of a charged particle in an arbitrary crossed field. It can be evaluated exactly if transcendental function evaluations are tolerable, or in an invariant-preserving expansion otherwise. We discuss progress in incorporating this approach into a particle-in-cell framework.

Acknowledgments

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