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Worldline numerics for electromagnetic Casimir energies JONATHAN MACKRORY, University of Oregon, Physics Department, TANMOY BHATTACHARYA, Los Alamos National Laboratory, T-2 Theoretical Division, DANIEL STECK, University of Oregon, Physics Department — We present our generalization of the worldline method for calculating electromagnetic Casimir energies. Previously, this method has been restricted to calculations for a scalar field. Our work calculates the Casimir energy due to dispersionless, dielectric bodies with arbitrary geometries. The worldline method calculates the energy by first generating an ensemble of closed space-time paths via a Monte-Carlo algorithm, and then summing up the contributions from the dielectric along each path. We are working on extending the method to include the dispersion and dissipation of the dielectric. We will present numerical results, and compare our method with other algorithms and known test cases.

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