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Iterative real-time path integral approach to nonequilibrium quantum transport MICHAEL THORWART, Freiburg Institute for Advanced Studies, Univ. Freiburg, Germany, STEPHAN WEISS, Niels-Bohr-Institute, Univ. Copenhagen, Denmark, JENS ECKEL, REINHOLD EGGER, Institute for Theoretical Physics, Univ. Duesseldorf, Germany — We have developed a numerical approach to compute real-time path integral expressions for quantum transport problems out of equilibrium. The scheme is based on a deterministic iterative summation of the path integral (ISPI) for the generating function of the nonequilibrium current. Self-energies due to the leads, being non-local in time, are fully taken into account within a finite memory time, thereby including non-Markovian effects, and numerical results are extrapolated both to vanishing (Trotter) time discretization and to infinite memory time. This extrapolation scheme converges except at very low temperatures, and the results are then numerically exact. The method is applied to nonequilibrium transport through an Anderson dot. [1] S. Weiss, J. Eckel, M. Thorwart, and R. Egger, Phys. Rev. B **77**, 195316 (2008)

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