

Abstract Submitted  
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**Towards quantum transport for central nuclear reactions<sup>1</sup>** BRENT W. BARKER, National Superconducting Cyclotron Laboratory, Michigan State University, ARNAU RIOS, University of Surrey, PAWEL DANIELEWICZ, National Superconducting Cyclotron Laboratory, Michigan State University — Efforts are on the way to develop a practical non-equilibrium Green's functions approach to central nuclear reactions. With the goal of reducing the computational space, the importance of the far off-diagonal elements in the spatial density matrix is investigated for one-dimensional slab collisions following the mean-field approximation. A truncation of these far off-diagonal elements has no effect on the evolution of the system close to the diagonal of the density matrix, though the time-reversed evolution is affected at a significant level. Further, the truncation softens interference effects present in the Wigner distribution for the collisions. Beyond the mean-field approximation, preliminary results for the inclusion of correlations are also presented.

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