

Abstract Submitted
for the APR07 Meeting of
The American Physical Society

Nucleon-Nucleon Scattering as a Stochastic Process in Phase Space¹ SARAH JOHN, Eloimagnus Advanced Sciences and Technologies — Nucleon-nucleon scattering is presented in the Wigner representation of the quantum Liouville equation. The antisymmetrized Wigner function, derived from minimum wave packets, is evolved in four-dimensional phase space representing spatial one-dimensional scattering. In the quasiclassical approximation, phase space points are evolved in a one-pion exchange potential in deterministic classical and stochastic quantum momentum jumps. Wave packet spreading inherent to linear dynamics is offset by intrinsic harmonic oscillation, resulting in phase space spin that perhaps lends meaning to the nucleon spin. Computed cross sections show good agreement with experiments in medium to high energy range.

¹Work performed under NASA contract #NNL05AB03P.

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Date submitted: 11 Jan 2007

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