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Quantum wave packets in hard-disk and hard-sphere billiards ARSENI GOUSSEV, University of Regensburg, J. ROBERT DORFMAN, University of Maryland — Analysis of quantum dynamics in systems with classically chaotic analogs constitutes one of the main objectives for the field of *Quantum Chaos*. The quantum dynamics is known to be determined, to a large extent, by chaotic features of counterpart classical systems. We address time evolution of wave packets in open chaotic billiards, in which a quantum particle travels among a collection of fixed scatterers taken to be hard disks or hard spheres in two or three spatial dimensions respectively. By studying the autocorrelation function for the wave packets we provide a detailed analysis of the phenomenon of wave packet partial reconstruction in the course of the time evolution, and discuss a close connection between the reconstruction dynamics and such important properties of the counterpart classical systems as the Lyapunov exponents, the Kolmogorov-Sinai and the topological entropies.

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