Hamilton-Jacobi Theory and the Heat Kernel on Heisenberg Groups

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Abstract

The subelliptic geometry of Heisenberg groups is worked out in detail and related to complex Hamiltonian mechanics. The two geometric pictures are essential for complete understanding of the heat equation for the subelliptic Laplacian. We give a complete description of the geodesics and obtain precise global estimates and small-time asymptotics of the heat kernel.

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