

# Toward pruning theory of the Stokes geometry for the quantum Hénon map

*Akira Shudo*

*Department of Physics, Tokyo Metropolitan University*

The Stokes geometry for the propagator of the quantum Hénon map is studied in the light of recent developments of the exact WKB analysis. As a simplest possible situation the Hénon map satisfying the so-called horseshoe condition is closely analyzed, together with listing up local bifurcation patterns of the Stokes geometry. This is exactly in the same spirit as pruning theory for the classical horseshoe system, and our analysis reveals that the birth and death of the saddle point solutions caused by the Stokes phenomenon do not occur in a local but entirely global manner, reflecting topological nature encoded in the Stokes geometry. We derive an explicit general formula to enumerate the number of saddle point solutions in the asymptotic region and obtain its growth rate, which is shown to be less than the topological entropy of the corresponding classical dynamics.