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Thursday, January 30, 2014
2:00 PM
258 Hurley Hall

Title: Imaginary time flow in geometric quantization and in Kahler geometry, degeneration to real polarizations and tropicalization

Abstract:

We will recall the problem of dependence of quantization of a symplectic manifold on the choice of polarization and study its relation with geodesics in the space Kahler metrics. Complex one parameter subgroups of the "group" of complexified hamiltonian symplectmorphisms appear naturally in this context.

For some classes of symplectic manifolds we will describe geodesic rays of Kahler structures degenerating to real polarizations and study the associated metric collapse. Each such ray selects a basis of holomorphic sections which converge to distributional sections supported on Bohr-Sommerfeld fibers as the geodesic time goes to infinity. The same geodesic rays lead to tropicalization of toric varieties and of hypersurfaces on toric varieties.