BOSTON UNIVERSITY GEOMETRY SEMINAR

Rigorous Path Integral for Supersymmetric Quantum Mechanics and the Gauss-Bonnet-Chern Theorem

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Wednesday April 27, 4-5 pm in MCS 149.
Tea 3:45-4 in MCS 153.

Abstract: Heuristic arguments interpreting and computing the path integral for supersymmetric quantum mechanics on a manifold give an elegant geometric derivation of the Gauss-Bonnet-Chern theorem. As a first step in making such arguments rigorous, we construct the path integral as a limit of finite-dimensional integrals, much in the spirit of the standard physics approach, and prove the limit agrees with the heat kernel in accord with the heuristic interpretation. The talk concludes with a discussion of progress towards proving the validity of the steepest-descent approximation for this path integral.