

**Meeting:** 1001, Evanston, Illinois, SS 3A, Special Session on Index Theory, Morse Theory, and the Witten Deformation Method

1001-58-189      **Dan Burghilea\*** (burghele@math.ohio-state.edu), Dan Burghilea, Department of Mathematics, OSU, 231 West 18-th Avenue, Columbus, OH 43210, and **Stefan Haller** (Stefan.Haller@univie.ac.at), Stefan Haller, Department of Mathematics, Univ. of Vienna, Northbergstrasse 15, A-1090, Vienna, Austria. *Laplace Transforms, Dynamics and Spectral Geometry.*

This is a joint work with S. Haller. I will show how to use Laplace transform of Dirichlet series to describe in terms of "spectral geometry" the counting of instantons and of "closed trajectories" for a large enough class of vector fields on a closed manifold. (The counting functions for instantons and for closed trajectories are interpreted as Dirichlet series and their Laplace transform is calculated explicitly.) The work provides also an analytic approach to Novikov Morse theory.

Extensions of Morse Witten Helffer Sjöstrand theory and the canonical compactification of the space of trajectories for vector fields as above are key technical ingredients. (Received August 25, 2004)