Dynamical systems on locally symmetric spaces

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Locally symmetric spaces provide examples for Riemannian manifolds on which standard dynamical systems such as the geodesic flow or its quantizations can be studied using a multitude of tools which simplify the treatment and at the same time allow for very explicit descriptions.

In this lecture series we will give an example oriented introduction to locally symmetric spaces, show how to explicitly describe the geodesic flow and its quantization, the Laplace-Beltrami operator. In the process, we will in particular explain the hyperbolic properties of the geodesic flow as well as the group theoretic description of closed geodesics in terms of conjugacy classes as it appears in the Selberg trace formula.

References

[1] B. Bekka and M. Mayer. Ergodic Theory and Topological Dynamics of Group Actions on Homogeneous Spaces. Cambridge University Press, 2000.

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