## Geodesic and horocycle flows from a dynamical systems point of view

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Abstract: I will discuss some results for geodesic and horocycle flows on compact manifolds of (variable) negative curvature. My emphasis will be on (quantitative) statistical properties. I will describe a functional analytic approach introduced in the last ten years for the study of "chaotic" systems. Such a method has allowed to prove a variety of results (e.g., exponential mixing of the geodesic flows, precise error terms in counting periodic orbits and meromorphic properties of certain zeta functions). In addition, it has striking relations with semi-calssical analysis and has convincingly shown the relevance of distributions (not just of measures) in the understanding of dynamical systems. I will finish mentioning the possibility of using such a machinery to study the convergence to the ergodic averages for the horocycle flows.

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