
Exponential decay of correlations for Sinai billiard flows

Viviane Baladi^{*†1}, Mark Demers², and Carlangelo Liverani³

¹Département de Mathématiques et Applications (DMA) – CNRS : UMR8553, École normale supérieure [ENS] - Paris – France

²Fairfield University – Fairfield, CT 06824, United States

³Dipartimento di Matematica [Roma II] (DIPMAT) – Via della Ricerca Scientifica, 00133 Roma, Italie, Italy

Abstract

We prove exponential decay of correlations for two-dimensional Sinai billiard flows with finite horizon. This is achieved by studying the spectrum (resonances) of a transfer operator on a suitable Banach space of anisotropic distributions, combining techniques of Dolgopyat and Liverani (as adapted in a previous work of Baladi-Liverani on piecewise hyperbolic contact flows) and methods of Demers-Liverani (as adapted in a previous work of Demers and Zhang giving a new proof of Young's result of exponential decay of correlations for Sinai billiard maps).

^{*}Speaker

[†]Corresponding author: viviane.baladi@ens.fr