

A spectral carachterization of Maharam measures

Mauro Artigiani

Universidad Nacional de Colombia

Translation surfaces generalize flat tori to higher genus. In this work, we investigate the geodesic flow on $\mathbb{Z}^d$ -covers of compact translation surfaces, assuming the existence of a renormalizing (pseudo-Anosov) map on the cover that lifts from a corresponding map on the base surface. Under these conditions, the natural invariant measures are Maharam measures, which can be interpreted as Lebesgue measure on a deformed version of the original surface. Following recent developments in the application of transfer operator techniques to parabolic dynamics, we demonstrate how these measures can be obtained through the analysis of a (twisted) transfer operator on appropriately chosen (anisotropic) Banach spaces. This work in progress is in collaboration with Roberto Castorrini, Davide Ravotti, and Yuriy Tumarkin.

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