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Title:

Symbolic dynamics for linear flows in the octagon

Abstract:

We consider linear flows in the (translation surface obtained from the) regular octagon and we provide an explicit characterization of cutting sequences, i.e. sequences of octagon sides hit by a trajectory. The flat torus is a classical example in which such sequences can be explicitly described by relating them to the continued fraction expansion of the slope, which plays the role of renormalization dynamics. We give a similar description for the octagon (and other lattice surfaces) exploiting the the renormalization dynamics in the space of translation surfaces and a continued fraction expansion in terms of the Veech group. This is a joint work with John Smillie.