

Horocycle invariant measures in the moduli space of translation surfaces

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Let $G = \mathrm{SL}(2, \mathbb{R})$ and let U be its subgroup of upper triangular unipotent matrices. Both groups act on strata of translation surfaces, and in a recent breakthrough result of Eskin-Mirzakhani-Mohammadi, the orbit-closures for the G -action were described in great detail. For some applications it would be very desirable to have a similar classification result for the U -action (such a result is suggested by an analogy with related results of Ratner concerning homogeneous flows). Nevertheless I will describe results exhibiting some new phenomena for the U -action which do not arise for the G -action.