

# The $SL(2, \mathbb{R})$ action on Moduli space

Alex Eskin

October 15, 2015

There is a natural action of the group  $SL(2, \mathbb{R})$  of  $2 \times 2$  matrices on the moduli space of compact Riemann surfaces. This action can be visualized using flat geometry models. I will survey some recent developments in the area, and give some applications to the study of billiards in polygons and other problems.