

1056-51-1425

Moon Duchin* (mduchin@umich.edu), **Christopher J Leininger** and **Kasra Rafi**.

Length-spectral rigidity for flat metrics.

Fix a surface S with a negatively curved metric and consider the marked length spectrum of all closed curves. These length data uniquely determine the metric among all negatively curved metrics on S , by a theorem of Otal. For metrics of constant negative curvature, the situation is much more rigid: it suffices to record the lengths of simple closed curves (and in fact, just $6g - 5$ curves will do for the surface of genus g). In joint work with Leininger and Rafi, we consider the rigidity of the length spectrum for singular flat metrics (semi-translation structures) on S , and give a complete solution describing which simple curve sets are rigid. (Received September 21, 2009)