Typical geodesics on flat surfaces.  (English summary)  


Summary: “We investigate typical behavior of geodesics on a closed flat surface $S$ of genus $g \geq 2$. We compare the length quotient of long arcs in the same homotopy class with fixed endpoints for the flat and the hyperbolic metric in the same conformal class. This quotient is asymptotically constant $F$ a.e. We show that $F$ is bounded from below by the inverse of the volume entropy $e(S)$. Moreover, we construct a geodesic flow together with a measure on $S$ which is induced by the Hausdorff measure of the Gromov boundary of the universal cover. Denote by $e(S)$ the volume entropy of $S$ and let $c$ be a compact geodesic arc which connects singularities. We show that a typical geodesic passes through $c$ with frequency that is comparable to $\exp(-e(S)l(c))$. Thus a typical bi-infinite geodesic contains infinitely many singularities, and each geodesic between singularities $c$ appears infinitely often with a frequency proportional to $\exp(-e(S)l(c))$.”

References

24. Kurt Strebel. Quadratic differentials, volume 5 of Ergebnisse der Mathematik und ihrer Grenzgebiete (3) [Results in Mathematics and Related Areas (3)], Springer-Verlag, Berlin, 1984. MR0743423

Note: This list, extracted from the PDF form of the original paper, may contain data conversion errors, almost all limited to the mathematical expressions.