

Hyperbolic polygons of minimal perimeter in punctured discs

JOAN PORTI

Abstract. We prove that, among the polygons in a punctured disc with fixed angles, the perimeter is minimized by the polygon with an inscribed horocycle centered at the puncture. We generalize this to a disc with a cone point and to an annulus with a geodesic boundary component and a complete end. Then we apply this result to describe the minimum of the spine systole on the moduli space of punctured surfaces.

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