

Info

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Hyperbolic metrics on a pair of pants

seams of a hyperbolic pair of pants

the seams are simply connected

the seams are isometric to convex hexagons

- Let P be the pair of pants equipped with a hyperbolic metric such that the three boundary circles are geodesics.

- Consider its double $P * P$. It is a complete Riemannian manifold of constant sectional curvature -1 so it must be a quotient of $\mathbb{R}H^2$

$$\pi : \mathbb{R}H^2 \rightarrow P * P$$

- Consider a component H_i of $\pi^{-1}(D_i)$. As D_i is simply connected, this is a homeomorphism.
- Now, H_i is a closed, connected, locally convex subset of $H^2 \implies$ it is convex.
- ∂H_i is a union of 6 geodesic curves.
- Thus, H_i is a convex hexagon in $\mathbb{R}H^2$.

Teichmuller space of a pair of pants

Proposition:

Proposition 10.5 *Let P be a pair of pants with boundary components α_1, α_2 , and α_3 . The map $\text{Teich}(P) \rightarrow \mathbb{R}_+^3$ defined by*

$$\mathcal{X} \mapsto (\ell_{\mathcal{X}}(\alpha_1), \ell_{\mathcal{X}}(\alpha_2), \ell_{\mathcal{X}}(\alpha_3))$$

is a homeomorphism.

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- [stretchy](#)
 - $T^2_{0,0,3}$
 - [Teichmuller space of a pair of pants](#)

And it has 1 siblings.

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