SL(4)-stuff (Part 2)

Investigations of SL(4)-structures

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We continue our investigation into the structure of convex cocompact representations of compact surface subgroups in semi-simple Lie groups, focusing this time on the anti de Sitter Case. We shall show how Thurston's constructions, including measured geodesic laminations and real trees, are realised geometrically inside anti de Sitter space, and we will see how k-surfaces serve to interpolate between these structures. Time permitting, we will study how these structures generalize to (1,3)-Anosov representations in PSL(4,R).

Abstract.

Contents

1 Anti de Sitter space

$$\mathrm{AdS}^{3,1} = \{(x_1, x_2, x_3, x_4) : x_1^2 + x_2^2 - x_3^2 - x_4^2 = -1\}$$

Projectivize everything and take an affine chart (y_1, y_2, y_3). you compute that $y_1^2 + y_2^2 - y_3^2 = 1 - 1/x_4^2$. This is the inside of a hyperboloid in $\mathbb{R}^3$. Remember that it is missing one point because it's an affine chart. So in reality it's a solid torus.