

Cross-ratio dynamics on ideal polygons

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Define a relation between labeled ideal polygons in the hyperbolic space by requiring that the complex distances (a combination of the distance and the angle) between their respective sides equal c ; the complex number c is a parameter of the relation. This defines a 1-parameter family of maps on the moduli space of ideal polygons in the hyperbolic space (or, in its real version, in the hyperbolic plane).

I shall discuss complete integrability of this family of maps and related topics, including its connection with the Korteweg-de Vries equation and to Coxeter's frieze patterns.