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Polyhedra inscribed in a hyperboloid and anti-de Sitter geometry.

Let Γ be a 3-connected graph embedded in \mathbb{S}^2 . In this talk we will show that Γ is the 1-skeleton of a Euclidean polyhedron inscribed in a hyperboloid if and only if it is the 1-skeleton of a polyhedron inscribed in a sphere and has a Hamiltonian cycle.

That result originates in statements on the geometry of ideal AdS polyhedra. Any hyperbolic metric on the sphere with n labelled cusps, and a distinguished “equator” and “top” and “bottom” polygon, can be uniquely realized as the induced metric on a convex ideal polyhedron in the anti-de Sitter space AdS^3 . Moreover we characterize the possible dihedral angles of those ideal AdS polyhedra, and show that each ideal polyhedron is characterised by its angles.

(This is a joint work with J Danciger and J-M Schlenker.) (Received January 21, 2014)