Volume of closed anti-de Sitter 3-manifolds

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In 1985, Kulkarni and Raymond proved that every complete compact Lorentz 3-manifold of constant negative curvature is (up to a finite cover) a quotient of $\mathrm{PSL}(2,\mathbb{R})$ by a surface group acting by left and right multiplication via two representations j and ρ, one of which is discrete and faithful.

In this talk I will explain why the volume of these quotients can be expressed in terms of the Euler class of j and ρ. In particular, this volume is constant under continuous deformations of the metric. Interestingly, this volume rigidity is not true anymore for non-compact quotients.