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Matthias Goerner* (enischte@gmail.com). *Verifying of and raytracing in finite hyperbolic triangulations.*

Casson's Geo and Heard's Orb can find a hyperbolic structure on a closed 3-manifold using finite triangulations. However, the methods are numerical and do not mathematically prove that the manifold is hyperbolic.

I will show how to use interval arithmetic to rigorously verify hyperbolicity using a finite triangulation. This required a new theoretical result for finite triangulations akin to a theorem by Neumann-Zagier and Moser for ideal triangulations upon which HIKMOT is based.

I will also show how finite triangulations can be used to render cohomology fractals for closed manifolds (joint work with David Bachmann, Saul Schleimer and Henry Segerman) to visualize Cannon-Thurston maps. (Received September 09, 2020)