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**Matthias Goerner\*** (enischte@gmail.com), **Robert C Haraway, III**, **Neil Hoffman** and **Maria Trnkova**. *Tilings, cusp areas and length spectrum.*

Verified computations are computations provably correct despite numerical errors that can occur when using floating point numbers. They are especially relevant in the study of hyperbolic 3-manifolds because they can be used to obtain topological invariants.

In this talk, I will outline verified computations of the length spectrum and the “maximal cusp area matrix” for a given manifold  $M$ . The latter is a matrix completely encoding which choices of cusp areas yield disjoint, respectively, embedded cusp neighborhoods. The challenge to implementing both these computations lies in addressing the decision problems that arise when tiling  $\mathbb{H}^3$  by copies of a fundamental domain for  $M$ . (Received March 08, 2021)