Thurston’s remaining problems

Speaker: Neil Hoffman, OSU
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Abstract: Resolving all but two of the problems from W. Thurston’s list at the end of his article “Three dimensional manifolds, Kleinian Groups and hyperbolic geometry” represents a set of major achievements for the field of low dimensional topology. Curiously, the two remaining problems are number theoretic in nature. The first is somewhat open ended: 

"19. Find topological and geometric properties of quotient spaces of arithmetic subgroups of PSL(2,C). These manifolds often seem to have special beauty.”

But the second (attributed to J. Milnor) is more concrete: “23. Show that volumes of hyperbolic 3-manifolds are not all rationally related.”

In this expository talk, I will discuss background on problem (23) (for non-topologists) and focus on restating it more narrowly in the context of two arithmetic examples.

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