

**Chinburg, Ted**

**A small arithmetic hyperbolic three-manifold.** (English) Zbl 0621.57006  
Proc. Am. Math. Soc. 100, 140-144 (1987).

It was shown by Jørgenson and Thurston that there is a minimal element  $v_1$  in the set of volumes of complete orientable hyperbolic three-manifolds. Let  $M$  be the complete orientable hyperbolic 3-manifold resulting from  $(5,1)$  Dehn surgery on the complement of the figure-eight knot  $K$  in  $S^3$ . It is established in this paper that  $M$  is arithmetic. On the other hand, the author and Jørgenson have shown that there is an arithmetic manifold  $M'$  with  $\text{vol } M' < \text{vol } M$ .

Reviewer: [G.Soifer](#)

**MSC:**

**57N10** Topology of general 3-manifolds (MSC2010)  
**51M10** Hyperbolic and elliptic geometries (general) and generalizations  
**30F40** Kleinian groups (aspects of compact Riemann surfaces and uniformization)

Cited in **5** Documents

**Keywords:**

volumes of complete orientable hyperbolic three-manifolds;  $(5,1)$  Dehn surgery on the complement of the figure-eight knot; arithmetic manifold

**Full Text:** [DOI](#)

**References:**

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