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Mark D. Baker* (mark.baker@univ-rennes1.fr), IRMAR, Campus de Beaulieu, Université Rennes 1, 35042 Rennes, France, and **Alan W. Reid**. *Arithmetic knots in integral homology 3-spheres.*

It is well known that the only arithmetic knot in S^3 is the figure eight, K . One obtains examples of integral homology spheres which contain an arithmetic knot by performing $1/n$ surgery on S^3 along K . Conjecturally, these are the only such examples.

We use the geometry of the Bianchi orbifolds $\mathbb{H}^3/PSL_2(\mathcal{O}_m)$ to provide evidence for our conjecture. Specifically, if $\Gamma \subset PSL_2(\mathcal{O}_m)$ is finite index, torsion free and $\Gamma^{ab} \cong \mathbb{Z}$ then $m \in \{1, 3, 19\}$. (If the conjecture is true then $m = 3$ and Γ is the figure eight knot group). (Received February 22, 2005)