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N. Shams and **E. Stanhope*** (stanhope@clark.edu), Department of Mathematical Sciences, 0615 SW Palatine Hill Road, MSC 110, Portland, OR 97219, and **D. L. Webb**. *You can't hear the isotropy type of an orbifold.*

Riemannian orbifolds are spaces that are locally modeled on the orbit space of a Riemannian manifold under the action of a finite group of isometries. These orbifolds possess a natural Laplace operator which operates on smooth functions on the orbifold. When the orbifold is compact the eigenvalues of the Laplace operator form a sequence $0 \leq \lambda_0 \leq \lambda_1 \leq \dots \uparrow \infty$ called the spectrum of the orbifold. As an inverse spectral geometer I ask: To what degree does the spectrum of an orbifold determine the geometry or topology of that orbifold? We will see that the spectrum does not determine the isotropy types of points in an orbifold. (Received January 11, 2007)