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On isometries of space forms. (English) [Zbl 0789.53027](#)

Szente, J. (ed.) et al., Differential geometry and its applications. Proceedings of a colloquium, held in Eger, Hungary, August 20-25, 1989, organized by the János Bolyai Mathematical Society. Amsterdam: North-Holland Publishing Company. Colloq. Math. Soc. János Bolyai. 56, 509-534 (1992).

The paper splits into two parts. The first one deals with a well known candidate for a closed hyperbolic 3-manifold of minimal volume (Weeks-Fomenko-Matveev manifold M_0 , $\text{vol}M_0 = 0.94\dots$) see *A. T. Fomenko* and *S. V. Matveev* [Russ. Math. Surv. 43, No. 1, 3-24 (1988); translation from *Usp. Mat. Nauk* 43, No. 1, 5-22 (1988; [Zbl 0671.58008](#))]. The author shows that M_0 does not regularly cover another closed hyperbolic 3-manifold and its isometry group is a Coxeter group of order 12. The second part studies minimal closed geodesics of closed non-oriented hyperbolic 3-manifolds in some infinite series combinatorically constructed by the author. Arguing to symmetries of corresponding Dirichlet polyhedra, he also describes isometries of these manifolds [see also *K. P. Makarova*, *F. L. Damian* and *V. V. Balkan*, *Mat. Issled.* 103, 151-163 (1988; [Zbl 0669.51012](#))].

For the entire collection see [\[Zbl 0764.00002\]](#).

Reviewer: [B.N.Apanasov \(Norman\)](#)

MSC:

[53C20](#) Global Riemannian geometry, including pinching

[53C22](#) Geodesics in global differential geometry

Cited in **2** Documents

Keywords:

closed hyperbolic 3-manifold; minimal volume; Coxeter group; closed geodesics; Dirichlet polyhedra