

**Flannery, D. L.**

**Cocyclic Hadamard matrices and Hadamard groups are equivalent.** (English) Zbl 0889.05032  
J. Algebra 192, No. 2, 749-779 (1997).

It is proved that the existence of cocyclic Hadamard matrices is equivalent to the existence of certain Hadamard groups. A procedure for the construction of Hadamard groups is described.

Reviewer: [V.D.Tonchev \(Houghton\)](#)

**MSC:**

- [05B20](#) Combinatorial aspects of matrices (incidence, Hadamard, etc.)
- [20E22](#) Extensions, wreath products, and other compositions of groups
- [05B10](#) Combinatorial aspects of difference sets (number-theoretic, group-theoretic, etc.)
- [20J05](#) Homological methods in group theory

Cited in **2** Reviews  
Cited in **29** Documents

**Keywords:**

[cocyclic Hadamard matrices](#); [Hadamard groups](#)

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

**References:**

- [1] Baliga, A.; Horadam, K.J., Cocyclic Hadamard matrices over  $\mathbb{Z}_t \times \mathbb{Z}_2$ , Australas. J. combin., 11, 123-134, (1995) · [Zbl 0838.05017](#)
- [2] Colbourn, C.J.; Dinitz, J.H., The CRC handbook of combinatorial designs, (1996), CRC Press Boca Raton · [Zbl 0836.00010](#)
- [3] de Launey, W.; Horadam, K.J., A weak difference set construction for higher dimensional designs, Des. codes cryptogr., 3, 75-87, (1993) · [Zbl 0838.05019](#)
- [4] Flannery, D.L., Calculation of cocyclic matrices, J. pure appl. algebra, 112, 181-190, (1996) · [Zbl 0867.20043](#)
- [5] Flannery, D.L., The finite irreducible linear 2-groups of degree 4, Mem. amer. math. soc., 129, (1997) · [Zbl 0927.20026](#)
- [6] Geramita, A.V.; Seberry, J., Orthogonal designs: quadratic forms and Hadamard matrices, (1979), Dekker New York · [Zbl 0411.05023](#)
- [7] Horadam, K.J.; de Launey, W., Cocyclic development of designs, J. algebraic combin., 2, 267-290, (1993) · [Zbl 0785.05019](#)
- [8] Horadam, K.J., Progress in cocyclic matrices, Congr. numer., 118, 161-171, (1996) · [Zbl 0898.05011](#)
- [9] K. J. Horadam, D. L. Flannery, W. de Launey, 1997, Cocyclic Hadamard matrices and difference sets · [Zbl 0956.05026](#)
- [10] Ito, N., On Hadamard groups, J. algebra, 168, 981-987, (1994) · [Zbl 0906.05012](#)
- [11] Ito, N., On Hadamard groups, II, J. algebra, 169, 936-942, (1994) · [Zbl 0808.05016](#)
- [12] Ito, N., On Hadamard groups, III, Kyushu J. math., (1996)
- [13] Ito, N., Remarks on Hadamard groups, Kyushu J. math., 50, 1-9, (1996)
- [14] Ito, N.; Okamoto, T., On Hadamard groups of order 72, Algebra colloq., 3, 307-324, (1996) · [Zbl 0869.05017](#)
- [15] Karpilovsky, G., The Schur multiplier, London math. soc. monographs, new ser., 2, (1987), Clarendon Oxford
- [16] Mac Lane, S., Homology, (1963), Springer-Verlag Berlin/Göttingen/Heidelberg
- [17] W. Nickel, 1993, Central Extensions of Polycyclic Groups, Australian National University
- [18] Robinson, D.J., Applications of cohomology to the theory of groups, (), 46-80
- [19] Scott, W.R., Group theory, (1987), Dover New York
- [20] Wallis, W.D., Combinatorial designs, (1988), Dekker New York · [Zbl 0637.05004](#)

This reference list is based on information provided by the publisher or from digital mathematics libraries. Its items are heuristically matched to zbMATH identifiers and may contain data conversion errors. It attempts to reflect the references listed in the original paper as accurately as possible without claiming the completeness or perfect precision of the matching.