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On cocyclic weighing matrices and the regular group actions of certain Paley matrices.

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Discrete Appl. Math. 102, No. 1-2, 63-101 (2000).

By definition a weighing matrix $W = W(x, t)$ is an $n \times n$ matrix with entries in $\{0, \pm 1\}$ satisfying $WW^T = W^TW = tI_n$ where T denotes the transposition and I_n is the identity matrix of degree n . An automorphism of W is a pair of signed permutations (P, Q) such that $PMQ^T = W$, and the set of all automorphisms of W forms a group which is called the group of automorphisms of W and is denoted by $\text{Aut}(W)$. Since Paley conference matrices are weighing matrices a study of the group of automorphisms of such matrices is set up in the paper. The study is also carried out for certain Paley Hadamard matrices. The authors determine all regular group actions obtained from these Paley matrices.

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MSC:

05E20 Group actions on designs, etc. (MSC2000)

05B20 Combinatorial aspects of matrices (incidence, Hadamard, etc.)

Cited in **8** Documents

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Software:

Magma

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