

Abstract

Series of Hadamard designs

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Combining the ideas of tactical decompositions, construction methods for designs admitting actions of automorphism groups (Janko) and well known facts from finite fields, we are able to construct infinite series of Hadamard designs. For two series of Hadamard parameter triples this approach has already shown to be successful: (i) for every odd prime power $q = p^e$ there is a symmetric design with parameters $(2q^2 + 1, q^2, (q^2 - 1)/2)$ admitting a certain automorphism group of order $q^2 \cdot \left(\frac{q-1}{2}\right)^2 \cdot e^2 \cdot 2$ (joint work with D. Held and M. Schmidt), (ii) for every λ being a prime power, there are (many) designs with parameters $(4\lambda + 3, 2\lambda + 1, \lambda)$ admitting an action of the group $E_\lambda : Z_{(\lambda-1)/2}$. In this talk we shall give more details on the second construction, starting from some Hadamard designs of order 10 as beginning examples.