

Abstract

Exotic complex Hadamard matrices and their equivalence

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In this talk we present a design theoretical approach to construct new, previously unknown complex Hadamard matrices of prime orders. Our methods generalize and extend the earlier results of de la Harpe–Jones [1] and Munemasa–Watatani [2] and offer a theoretical explanation for the existence of some sporadic examples of complex Hadamard matrices in the existing literature. As it is increasingly difficult to distinguish inequivalent matrices from each other, we propose a new invariant, the fingerprint of complex Hadamard matrices. As an application, we refute a conjecture of Koukouvinos et al. on $(n - 8) \times (n - 8)$ minors of real Hadamard matrices [3].

References

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