

1035-05-1543

Tariq A Alraqad and **Mohan S Shrikhande*** (shrik1m@cmich.edu), Mathematics Department, Central Michigan University, Mt. Pleasant, MI 48859. *Infinite families of non-embeddable quasi-residual Menon designs*. Preliminary report.

A Menon design of order h^2 is a symmetric $(4h^2, 2h^2 - h, h^2 - h)$ design. A quasi-residual design of a Menon design is a $2-(2h^2 + h, h^2, h^2 - h)$ design. In this paper, regular Hadamard matrices are used to construct non-embeddable quasi-residual Menon designs. Theorem: Let h be a positive integer. If there exists a regular Hadamard matrix of order $4h^2$, then there exist non-embeddable quasi-residual designs with parameters $2-(128h^2 + 8h, 64h^2, 64h^2 - 8h)$ and $2-(200h^2 + 10h, 100h^2, 100h^2 - 10h)$. As applications, new infinite families of non-embeddable quasi-residual Menon designs are obtained. (Received September 20, 2007)