The Strong Orthogonal Property

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A sign pattern is a matrix whose entries belong to $\{0, 1, -1\}$. Each entry of a sign pattern represents the sign of a real number. We say that a sign pattern allows orthogonality if we can replace its entries with real numbers of the corresponding sign and obtain an orthogonal matrix. In this talk we address the question of which sign patterns allow orthogonality. The talk focuses on the strong orthogonal property, a new tool for constructing sign patterns of orthogonal matrices, along with some applications.

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