Multipartite entangled states and irredundant orthogonal arrays

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The notion of an irredundant orthogonal array ($IrOA$) was introduced by Goyeneche et.al who showed an $IrOA_\lambda(t, k, v)$ corresponds to a t-uniform state of k subsystems with local dimension v (Physical Review A. 90 (2014), 022316). In this talk, we give some results of $IrOA_\lambda(t, k, v)$s. Furthermore, we construct some 3-uniform states for an arbitrary number of $k \geq 8$ and some 2-uniform states for $k = 5, 6, q, q + 1$, where q is a prime power.

This is a joint work with Yajuan Zang, Guangzhou Chen and Kejun Chen.