

More Combinatorially Orthogonal Graphs

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Vectors $x = (x_1, x_2, \dots, x_n)^T$ and $y = (y_1, y_2, \dots, y_n)^T$ are *combinatorially orthogonal* if $|\{i : x_i y_i \neq 0\}| \neq 1$. An undirected graph $G = (V, E)$ is a *combinatorially orthogonal graph* if there exists $f : V \rightarrow \mathbb{R}^k$ for some k such that for any $u, v \in V$ $uv \notin E$ iff $f(u)$ and $f(v)$ are combinatorially orthogonal. We will show the forbidden induced subgraphs of various dimensions of combinatorially orthogonal graphs. We will also state the minimum dimension necessary to generate such representation for specific classes of graphs.

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