Unparalleled even cycle systems

Tommaso Traetta*, Peter Danziger, Eric Mendelsohn, Ryerson University

A $2t$-cycle system of order $v$ is a set $C$ of cycles whose edges partition the edge-set of $K_v - I$ (i.e., the complete graph minus the 1-factor $I$). If $v \equiv 0 \pmod{2t}$, a set of $v/2t$ vertex-disjoint cycles of $C$ is a parallel class. If $C$ has no parallel classes, we call such a system unparalleled.

We show that there exists an unparalleled $2t$-cycle system of order $v$ if and only if $v \equiv 0 \pmod{2t}$ and $v > 2t > 2$.

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