The $\lambda$-fold spectra of Stanton 4-cycles

Ryan C. Bunge, Saad I. El-Zanati and J. Torf, Illinois State University, Adam Hakes, Purdue University, Joel Jeffries*, Iowa State University, Elizabeth Mastalio, University of Northern Iowa.

Let $G$ be a multi-edged 4-cycle where there exists exactly one edge is of multiplicity $i$ for each $1 \leq i \leq 4$. We call these Stanton 4-cycles, of which there are exactly 3. Let $\lambda K_n$ be the $\lambda$-fold complete graph on $n$ vertices. We discuss necessary and sufficient conditions on $n$ and $\lambda$ to obtain a $G$-decomposition of $\lambda K_n$. Part of this work was done during the Illinois State University REU for Pre-service and In-service Secondary Mathematics Teachers.

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