

Discrete Mathematics Seminar

Illinois State University

2:00–2:50 pm, November 19

Speaker: Sadegheh Haghshenas, Western University

On regular set systems containing regular subsystems

Let X, Y be finite sets, $r, s, h, \lambda \in \mathbb{N}$ with $s \geq r$, $X \subset Y$. By $\lambda \binom{X}{h}$ we mean the collection of all h -subsets of X where each subset occurs λ times. A coloring of $\lambda \binom{X}{h}$ is r -regular if in every color class each element of X occurs r times. A one-regular color class is a perfect matching. We are interested in the necessary and sufficient conditions under which an r -regular coloring of $\lambda \binom{X}{h}$ can be embedded into an s -regular coloring of $\lambda \binom{Y}{h}$ and nearly settle the case $h = 4$.

