Constructing $d$-Handicap Tournaments

Bryan Freyberg*, Melissa Keranen, Michigan Technological University

A regular $d$-handicap tournament, $H(n, k, d)$ is an incomplete tournament in which $n$ teams play $k < n - 1$ teams each and the strength of schedule of the $i^{th}$ ranked team is $d$ more than the $(i+1)^{st}$ ranked team. That is, strength of schedules of the teams increases arithmetically with strength of the team. The corresponding $k$-regular graph, we call a $d$-handicap graph. In this talk, we address the spectrum for $n,k$, and $d$ and construct large classes of $d$-handicap tournaments for every $d \geq 1$.

Keywords: antimagic graph labeling, incomplete tournament, handicap tournament