Meeting: 1003, Atlanta, Georgia, SS 24A, AMS Special Session on Design Theory and Graph Theory, I

1003-05-418 John Roger Schmitt* (jrschmi@emory.edu), Dept. of Mathematics \& Computer Science,
Emory University, 400 Dowman Drive, Atlanta, GA 30322, and Ronald J Gould and Michael
Ferrara. Potentially $K_{s}^{t}$-graphic degree sequences.
We consider a variation of the classical Turán-type extremal problem as introduced by Erdős et.al. Let $\pi$ be an $n$-element graphical sequence, and $\sigma(\pi)$ be the sum of the terms in $\pi$, that is the degree sum. Let $G$ be a graph. The problem is to determine the smallest even integer $m$ such that any $n$-term graphical sequence $\pi$ having $\sigma(\pi) \geq m$ has a realization containing $G$ as a subgraph. Denote this value $m$ by $\sigma(G, n)$. Here we determine a lower bound for $\sigma\left(K_{s}^{t}, n\right)$ - where $K_{s}^{t}$ denotes the complete multipartite graph with $t$ partite sets each of size $s$, and prove equality in the case $s=2$. We also provide a graph theoretic proof of the value of $\sigma\left(K^{t}, n\right)$. (Received September 14, 2004)

