A nonnegative integer sequence is graphic if it is the degree sequence of some graph. Given a graph $H$ a graphic sequence $\pi$ is potentially $H$-graphic if there is some realization of $\pi$ that contains $H$ as a subgraph. Let $\sigma(\pi)$ denote the sum of a graphic sequence $\pi$. The potential number, $\sigma(H, n)$, is the minimum even integer such that every $n$-term graphic sequence $\pi$ with $\sigma(\pi) \geq \sigma(H, n)$ is potentially $H$-graphic.

For $r \geq 2$, a sequence is $r$-graphic if it is the degree sequence of an $r$-uniform hypergraph. While several efficient characterizations exist for determining if a given sequence is graphic, determining if a given sequence is $r$-graphic for any $r \geq 3$ was recently shown to be $NP$-complete by Deza, Levin, Meesum, and Onn [Optimization Over Degree Sequences. SIAM Journal on Discrete Mathematics, 32(3), 2067-2079.]

In this talk, we consider an extension of the potential problem to the setting of $r$-graphic sequences. In particular, we determine the potential number for complete hypergraphs. We additionally present some results on the stability of the potential function for $r$-graphs that highlight an important distinction between the $r = 2$ and $r \geq 3$ cases. (Received September 17, 2019)