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Michael Ferrara* (michael.ferrara@ucdenver.edu), **Catherine Erbes**, **Ryan M. Martin**
and **Paul Wenger**. *Stability of the Potential Function*. Preliminary report.

A graphic sequence π is potentially H -graphic if there is some realization of π that contains H as a subgraph. The Erdős-Jacobson-Lehel problem asks to determine $\sigma(H, n)$, the minimum even integer such that any graphic sequence π with sum at least $\sigma(H, n)$ is potentially H -graphic.

Recently, Ferrara, LeSaulnier, Moffatt and Wenger determined $\sigma(H, n)$ asymptotically for all H . In short, their result states that for a graph H , there is a family $\mathcal{P}(H)$ of graphic sequences such that $\sigma(H, n) = \sigma(\pi)n + o(n)$ for every $\pi \in \mathcal{P}(H)$.

In this paper, we prove several stability results for the Erdős-Jacobson-Lehel problem, similar to the stability results of Erdős and Simonovits for the Turán problem. We say that a graph H is σ -stable if every graphic sequence with sum close to $\sigma(H, n)$ that is not potentially H -graphic can be transformed into a sequence in $\mathcal{P}(H)$ with $o(n)$ additions and subtractions. We show that there is a large family of graphs that are σ -stable. However, we also show that, in contrast to the Turán problem, not all graphs are σ -stable. (Received August 08, 2015)