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On the spectral radius of simple digraphs with prescribed number of arcs.

Summary: This paper presents a sharp upper bound for the spectral radius of simple digraphs with described number of arcs. Further, the extremal graphs which attain the maximum spectral radius among all simple digraphs with fixed arcs are investigated. In particular, we characterize all extremal simple digraphs with the maximum spectral radius among all simple digraphs with arcs number $e = 2\binom{k}{2} + t$ and $k > 4t^4 + 4$.

Keywords: simple digraph; spectral radius; arc
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