On imbalances in digraphs

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The imbalance of a vertex v_i in a digraph as b_{v_i} (or simply b_i) $= d^+_{v_i} - d^-_{v_i}$, where $d^+_{v_i}$ and $d^-_{v_i}$ are respectively the outdegree and indegree of v_i. The imbalance sequence of a simple digraph is formed by listing the vertex imbalances in non-increasing order. D. Mubayi [2] obtained necessary and sufficient conditions for a sequence of integers to be the imbalance sequence of a simple digraph. In this talk, we present the characterizations of imbalance sequences for various classes of digraphs in light of references [1, 3, 4, 5, 6, 7]. Some of these characterizations provide algorithms for construction of the corresponding digraphs. The set of distinct imbalances is called the imbalance set and we also present conditions for the existence of certain digraphs with given sets of integers as imbalance sets.

References

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