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ON BIDEGREE SEQUENCES OF DIRECTED TREES

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Abstract of Report Talk: A directed tree (or ditree for short) is a directed graph whose underlying graph is a tree. We consider labeled ditrees, that is ditrees with a vertex set $[n] = 1, \dots, n$. The bidegree sequence of such a labeled ditree is the sequence of $((l_1, w_1), \dots, (l_n, w_n))$, where l_i (resp. w_i) is the in (resp. out) degree of the vertex i . There are known necessary and sufficient conditions for a sequence of pairs of non-negative integers that are realized as bidegree sequences of ditrees, but the natural question of how many different ditrees realize a given realizable bidegree sequence is wide open. This is in sharp contrast with the case of degree sequences of (undirected) trees where the elegant answer is well known. We will give a complete answer to the question in the case of dipaths, that is ditrees whose underlying tree is a path, and we will present tentative answers for other classes of trees.

[Joint work with Nikolaos Apostolakis]

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