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## On multigraphic and potentially multigraphic sequences

Dedicated to the memory of Antal Iványi

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Abstract. An r-graph(or a multigraph) is a loopless graph in which no two vertices are joined by more than r edges. An r-complete graph on n vertices, denoted by  $K_n^{(r)}$ , is an r-graph on n vertices in which each pair of vertices is joined by exactly r edges. A non-increasing sequence  $\pi = (d_1, d_2, \ldots, d_n)$  of non-negative integers is said to be r-graphic if it is realizable by an r-graph on n vertices. An r-graphic sequence  $\pi$  is said to be potentially  $S_{L,M}^{(r)}$ -graphic if it has a realization containing  $S_{L,M}^{(r)}$ -graph. We obtain conditions for an r-graphic sequence to be potentially  $S_{L,M}^{(r)}$ -graphic. These are generalizations from split graphs to p-tuple r-split graph.

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