Summary: A multigraph $G$ on $n$ vertices is $(k, \ell)$-sparse if every subset of $n' \leq n$ vertices spans at most $kn' - \ell$ edges. $G$ is tight if, in addition, it has exactly $kn - \ell$ edges. For integer values $k$ and $\ell \in [0, 2k)$, we characterize the $(k, \ell)$-sparse graphs via a family of simple, elegant and efficient algorithms called the $(k, \ell)$-pebble games.

MSC:

05C75 Structural characterization of families of graphs
05C85 Graph algorithms (graph-theoretic aspects)
05B35 Combinatorial aspects of matroids and geometric lattices
05C70 Edge subsets with special properties (factorization, matching, partitioning, covering and packing, etc.)
91A43 Games involving graphs
68R10 Graph theory (including graph drawing) in computer science
05C62 Graph representations (geometric and intersection representations, etc.)

Keywords:

sparse graph; pebble game; Henneberg sequence; matroid; circuit; rigidity

Full Text: DOI arXiv

References:

[30] Whiteley, W., Some matroids from discrete applied geometry, (), 171-311 · Zbl 0860.05018

This reference list is based on information provided by the publisher or from digital mathematics libraries. Its items are heuristically matched to zbMATH identifiers and may contain data conversion errors. It attempts to reflect the references listed in the original paper as accurately as possible without claiming the completeness or perfect precision of the matching.