

## Coherent Network Partitions

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A new type of graph partitions, called coherent partitions, were introduced and studied. A coherent partition of a graph  $G$  is defined as a vertex partition that yields partition composed only of disconnected subgraphs in the complement of  $G$ . In addition, a coherent number of a graph  $G$  is defined as the size of the minimum edge cut over all coherent partitions of  $G$ . Coherent partitions (coherent numbers) are studied in connection to clique and biclique partitions (clique and biclique cover numbers). We also investigate the complexity of the problem of finding optimal coherent partitions, which is polynomial for trees, but NP in general.

Keywords: network partitions, biclique spanned subgraphs, coherent partition, coherent number.