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Angela Angeleska* (aangeleska@ut.edu) and **Zoran Nikoloski**
(nikoloski@mpimp-golm.mpg.de). *Coherent Network Partitions*.

The main motivation for our study of network partitions was the clustering problem in biological networks with applications to gene function and functional module prediction. The clique and biclique partition problems have found applications in biclustering of microarray data and analysis of gene co-expression. Therefore, the new type of partitions that we introduce and study here, called coherent partitions, are also relevant in the aforementioned fields. 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. (Received July 25, 2017)