

1125-05-1019      **Hoang Dau**, CSL, Urbana, IL 61801, and **Olga Milenkovic\*** ([milenkov@illinois.edu](mailto:milenkov@illinois.edu)),  
Urbana, IL 61801. *Boolean Intersection Graphs*.

We propose a new latent Boolean feature model for complex networks that captures different types of node interactions and network communities. The model is based on a new concept in graph theory, termed the Boolean intersection representation of a graph, which generalizes the notion of an intersection representation. We mostly focus on one form of Boolean intersection, termed cointersection, and describe how to use this representation to deduce node feature sets and their communities. We derive several general bounds on the minimum number of features used in cointersection representations and discuss graph families for which exact cointersection characterizations are possible. Our results also include algorithms for finding optimal and approximate cointersection representations of a graph. (Received September 14, 2016)