Orders: Interval, Interval-Probe, and Interval-\(k\)

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If an interval graph is such that its complement can be oriented transitively, that orientation yields an interval order. A graph \(G\) is an interval-probe graph if its vertices can be partitioned into \(P\) (probes) and \(N\) (nonprobes) and each vertex \(v\) can correspond to an interval \(I_v\) so that vertices \(u\) and \(v\) are adjacent if and only if \(I_u \cap I_v \neq \emptyset\) and \(\{u, v\} \cap P \neq \emptyset\). A graph \(G\) is an interval \(k\)-graph if its vertices can be properly colored and each vertex \(v\) can correspond to an interval \(I_v\) so that vertices \(u\) and \(v\) are adjacent if and only if \(I_u \cap I_v \neq \emptyset\) and \(u\) and \(v\) are colored differently. Interval probe graphs generalize interval graphs and interval \(k\)-graphs generalize interval-probe graphs. This talk will contain recent characterizations of interval-probe orders (order obtained from a transitive orientation of an interval-probe graph) of interval \(k\)-orders (order obtained from a transitive orientation of an interval \(k\)-graph).

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