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*Max Point-Tolerance Graphs*

A graph  $G$  is *max point-tolerance (MPT)* when each vertex  $v$  of  $G$  can be mapped to a *pointed-interval*  $(I_v, p_v)$  where  $I_v$  is an interval of  $\mathbb{R}$  and  $p_v \in I_v$  such that  $uv$  is an edge of  $G$  iff  $I_u \cap I_v \supseteq \{p_u, p_v\}$ . MPT graphs arise naturally as a way to model relationships among DNA fragments in genome-wide association studies. We characterize these graphs by a geometric representation and a vertex ordering condition. We also show how to find a maximum weighted independent set in polynomial time, and demonstrate that it is NP-complete to find the chromatic number.

This is joint work with D.Catanzaro, B.Halldórsson, M.Halldórsson, and J.Stacho.