The competition number of a graph $G$ with exactly one maximal clique of size $\geq 3$

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Given a digraph $D$, its competition graph $C(D)$ has the same vertex set as $D$ and an edge between two vertices $x$ and $y$ if there is a vertex $u$ so that $(x, u)$ and $(y, u)$ are arcs of $D$.

Roberts [1978] observed that if $G$ is any graph, $G$ together with sufficiently many isolated vertices is the competition graph of an acyclic digraph. Then he defined the competition number $k(G)$ of a graph $G$ to be the smallest number $k$ such that $G$ together with $k$ isolated vertices added is the competition graph of an acyclic digraph.

Roberts [1978] gave a formula for the competition number of connected graphs with no triangles and Kim and Roberts [1997] computed the competition number of connected graphs with exactly one triangle. In this talk, we will give the competition number of a graph with exactly one maximal clique of size $\geq 3$, which extends their results.

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