

Center for Applied Mathematics and Science, The University of West Georgia

Mathematics Colloquium

Vertex Identifying Code in Infinite Hexagon Grid

Gexin Yu

Department of Mathematics

The College of William and Mary

Tuesday, April 27th 4:00-5:00 pm, Room 301, Boyd Building

Given a graph G , an identifying code $\mathcal{C} \subseteq V(G)$ is a vertex set such that for any two distinct vertices $v_1, v_2 \in V(G)$, the sets $N[v_1] \cap \mathcal{C}$ and $N[v_2] \cap \mathcal{C}$ are distinct and nonempty (here $N[v]$ denotes a vertex v and its neighbors). We study the case when G is the infinite hexagonal grid H . Cohen et.al. constructed two identifying codes for H with density $3/7$ and proved that any identifying code for H must have density at least $16/39 \approx 0.410256$. Both their upper and lower bounds were best known until now. Here we prove a lower bound of $12/29 \approx 0.413793$.