

# Discrete Mathematics Seminar

Illinois State University

2:00–2:50 pm, September 30

Speaker: Xiaofeng Gu, University of West Georgia

## Cyclic ordering of uniformly dense graphs

Let  $G$  be a connected graph with vertex set  $V(G)$  and edge set  $E(G)$ . A cyclic base ordering (or simply, cyclic ordering) of  $G$  is a cyclic ordering of  $E(G)$  such that every cyclically consecutive  $|V(G)| - 1$  edges form a spanning tree of  $G$ . The density of  $G$  is defined to be  $d(G) = \frac{|E(G)|}{|V(G)|-1}$ ; and  $G$  is uniformly dense if  $d(H) \leq d(G)$  for every connected subgraph  $H$  of  $G$ . Kajitani, Ueno and Miyano conjectured in 1988 that  $G$  has a cyclic base ordering if and only if  $G$  is uniformly dense. To support the conjecture, we study cyclic base ordering of several families of graphs. This is joint work with three high school students Jessica Li (Westwood High School, TX), Eric Yang (Allen High School, TX) and William Zhang (Harker High School, CA).

