

DISCRETE MATHEMATICS SEMINAR
CENTER FOR APPLIED MATHEMATICS AND SCIENCE
DEPARTMENT OF MATHEMATICS
UNIVERSITY OF WEST GEORGIA

1:15 - 2:05 PM, Friday, February 24, 2017

BOYD 306

Speaker: **Dr. Xiaofeng Gu** (UWG)

Title: **Chorded pancyclic graphs**

Abstract:

A graph with n vertices is pancyclic if it contains cycles of length l , for every l , $3 \leq l \leq n$, and it is chorded pancyclic if it contains chorded cycles of every length l , for $4 \leq l \leq n$.

Bondy's well-known meta-conjecture states that almost any condition on a graph that implies the graph is hamiltonian also implies that the graph is pancyclic, with a simple family of exceptions. To support his meta-conjecture, Bondy shows that if a graph G with n vertices and with at least $n^2/4$ edges is hamiltonian, then G is pancyclic, unless G is $K_{n/2, n/2}$.

Cream, Gould and Hirohata extended Bondy's meta-conjecture as follows: Almost any condition on a graph that implies the graph is hamiltonian also implies the graph is chorded pancyclic, with a simple family of exceptions or some small order exceptions. To support their conjecture, we extend Bondy's Theorem as follows: If a graph G with $n \geq 4$ vertices and with at least $n^2/4$ edges is Hamiltonian, then G is chorded pancyclic, unless G is $K_{n/2, n/2}$ or the cartesian product $K_3 \times K_2$.

This is joint work with Guantao Chen, Ronald J. Gould and Akira Saito.