TEXAS ★ STATE
MATHEMATICS ®

* Please note the room has been changed to DH 331 for the rest of the semester. *

Discrete Mathematics Seminar

Time: Friday, February 17, 2023, 1:00 - 2:00 PM
Title: On Prime Graphs of Finite Groups
Speaker: Dr. Thomas Keller, Department of Mathematics, Texas State University
Location: 331 Derrick Hall

Abstract:

Let G be a finite group and write $\pi(G)$ for the set of prime divisors of the order of G. The well-known prime graph of G, denoted by $\Gamma(G)$, is the graph with vertex set $\pi(G)$ and with two vertices p and q linked by an edge if and only if there exists an element of order pq in G. In this talk we discuss a purely graph theoretical characterization of prime graphs of solvable groups which says that a graph is isomorphic to the prime graph of a solvable group if and only if its complement is 3-colorable and triangle free. As time permits, we will also introduce and discuss the notion of a minimal prime graph, and/or discuss some recent progress on going beyond solvable groups. Most of the work presented is joint with Alexander Gruber, Mark L. Lewis, Keeley Naughton, and Benjamin Strasser.