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Discrete Mathematics Seminar

Time: Friday, 29 April 2016, 2:15 – 3:15 PM
Location: 237 Derrick Hall
Title: Preliminary Results on Automated Conjecturing
Speaker: Mr. Randy Davila, Department of Mathematics

Abstract:

The idea of having a computer program that could automate mathematical conjecture making first appeared in the 1950's, yet it wasn't until the mid 1980's that a successful program appeared. This program, due to Sieman Fajtlowicz, and called *Graffiti* successfully produced a myriad of conjectures in graph theory, number theory, and theoretical chemistry. Indeed, well known mathematicians such as Paul Erdös, Bélla Bollobás, Fan Chung, Odile Favaron, Joel Spencer, and Noga Alon, all produced research papers on the conjectures of Graffiti. Following the work of Fajtlowicz, Ermelinda DeLeViña, produced an adaptation of Graffiti, known as *Graffiti.pc* (under the doctoral supervision of Fajtlowicz), which has been used as the starting point for various senior projects at the University of Houston-Downtown, as well as a main contributor to the theory of *total domination* in graphs. In this talk, we discuss a new implementation of automated conjecturing developed by the author with the goal of developing a new tool to be used by mathematicians and mathematics educators within the Texas State Mathematics Department. We will also present preliminary conjectures produced by the current program, as well as have an open discussion on what possible applications the program may have within the department.