

1154-05-2491      **Rachelle Bouchat\*** (rbouchat@iup.edu), Indiana University of Pennsylvania, 210 South Tenth Street, Stright Hall, Room 233, Indiana, PA 15705, and **Patrick Cone** and **Williem Rizer**. *A Tale of Two Graph Theory Projects: From Graceful Trees to Domino Tilings*. Preliminary report.

In this talk, two different research projects will be discussed, both of them are joint works with students at Indiana University of Pennsylvania. The first project is joint work with an undergraduate student, Patrick Cone, on the Graceful Tree Conjecture. This conjecture is a graph labeling problem for trees that was first posed by Kotzig, Ringel, and Rosa in 1967 and remains open today (despite hundreds of publications on the topic) . The results presented will showcase our progress on the problem through our various approaches.

The second project that will be discussed is joint work with a master's student, Williem Rizer, on domino tilings of rectangles. The result that will be discussed is that placing dominoes on the doubly even positions of the rectangle, will result in either no tiling or a unique tiling. The proof will involve the use of forests with colored vertices, showcasing a nice connection of a tiling problem to graph theory. (Received September 17, 2019)