

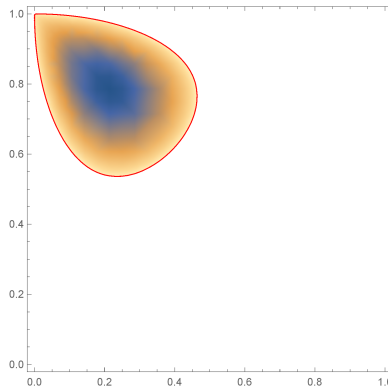
# Student Research Talks (StReeTs)

Mason Experimental Geometry Lab (MEGL)

## Preliminaries for an algorithm to calculate Steiner Graphs in $\mathbb{R}^2$

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### Abstract

We will explore some preliminaries to verify an algorithmic approach to calculating Steiner graphs (optimal minimum spanning trees with respect to shortest distance) for a set of  $n$  points in  $\mathbb{R}^2$  which are characterized with coordinates in the  $x$ - $y$  plane. This problem arose in a graduate level optimization course. The talk should be accessible to undergraduate students. Only a limited amount of graph theory is required to understand the problem statement. We will review the concepts of minimum spanning trees (MSTs), Steiner points and Steiner graphs from graph theory. The partial solutions presented rely on geometry (triangle inequality) and trigonometry (law of sines, law of cosines).

Date: Friday, October 7, 2016

Time: 2:30pm–3:30pm

Place: Exploratory Hall 4106

**Pizza and soda will be served at the presentation.**

For further information or for special accommodations, please contact Sean Lawton via email at [seanlawton@gmail.com](mailto:seanlawton@gmail.com) or drop by the MEGL.