

Thursday, January 28, 2016

4:30–5:20 p.m.

SAS 2102

Leveraging the Power of Heat to Find Optimal Shapes

Andrew Cooper

In physical media, heat flows out of **hot spots** and into **cold spots**. In fact, it does so very quickly, until it is distributed as evenly as possible given the circumstances.

In this talk, we'll learn how to treat **geometric objects** (polygons, curves, and surfaces) as though they were temperature distributions, and let heat work its magic to produce “evenly distributed”—that is, symmetric—versions.

We'll talk about the ramifications of this idea in pure mathematics, where it has helped to answer the question, “Which shapes are possible?” The heat approach to geometry also has applications in **computer graphics and imaging**, and in physics, where it may shed light on the question, “What is the shape of the universe?” This talk will be **accessible to all undergraduates**.

NCSU Society for Undergraduate Mathematics

SUM Series

Mathematics and pizza!