The SUMO Speaker Series for Undergraduates

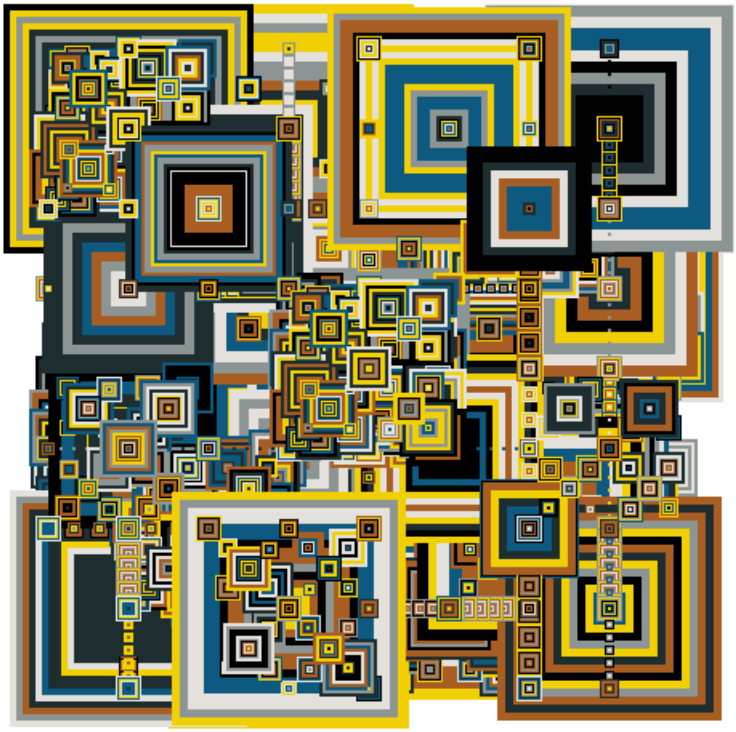
Wednesday, April 11th

4:15-5:05, room 380C

(Food Provided)

Space-filling curves and the Hahn-Mazurkiewicz theorem

Sander Kupers



ABSTRACT:

In this talk we'll go back in time to the end of the nineteenth century, when people asked a seemingly innocent question: what can be image of the unit interval under a continuous function to the plane? Though an obvious guess might be that all such sets look like nice smooth curves, in 1890 Peano found a continuous function having the entire unit square as its image. The final answer is one of the highlights of point-set topology: the Hahn-Mazurkiewicz theorem, which completely characterizes all possible images of [0,1] by generalizing Lebesgue's construction of a space-filling curve.

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