

MSCS Mess

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Department of Mathematics, Statistics, and Computer Science
St. Olaf College, Northfield, MN 55057

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This Week's Colloquium

Title:	A Provably "Jam-proof" Algorithm for (Almost) Filling Space
Speaker:	Christopher Ennis
Date:	Monday, March 23
Time:	3:30 - 4:30 pm
Location:	RNS 310

About the talk: Ennis will describe, demonstrate, and prove a few things about an elegantly simple algorithm, due to John Shier, for the disjoint but otherwise random placement of successively smaller copies of an arbitrary shape inside a larger bounded region ("the frame"). The infinite sum of the shape areas can be made equal to the total area of the bounded frame. Under these conditions Shier found, by extensive experimentation, that for a narrow range of exponents dependent on the particular shape used, his algorithm would "run forever", effectively filling the entire frame with a fractal-like collage of the given shape. What's more, Shier has yet to find a shape that (at least for c -values within an appropriate range) would cause his algorithm to "jam." That is, be unable to find enough room to place the next shape in the sequence, disjoint from the others.

After presenting several aesthetically pleasing examples of the algorithm at work, Ennis will give a simple rigorous proof of the one-dimensional version of Shier's conjecture. Using the one-dimensional proof as a springboard, he will sketch the outline of a proof for the two-dimensional case, in which disjoint circular discs are placed randomly within a circular frame. Finally, Ennis will mention some open questions, suitable for investigation by undergraduates.

Christopher Ennis, a Northfield resident, received his Ph.D. in mathematics from the University of California, Berkeley. He is currently a member of the

Department of Mathematics and Computer Science at Normandale Community College in Bloomington.

Come Work for MSCS!

The MSCS department has lots of jobs for those of you with work-study awards, and those without. You can be a grader, a tutor in the math & stats help sessions (aka "clinics"), a teaching assistant, a cluster manager, and more. Most jobs are taken for this semester, but we'd like to line up as many of you as possible for next fall. Stop by Patty Martinez's office in RMS 307 for an application before you miss your chance and the only job left is one you don't want.

and for Your Reading Pleasure...

a Math Joke

A mathematician and her friend attend a Physics lecture. The topic involves processes that occur in spaces with dimensions of 9, 12 and higher. The friend puzzles through the whole thing and by the end has a terrible headache. But the mathematician comments about the wonderful lecture.

"How do you understand this stuff?" asks the friend.

"Oh, it's easy, I just visualize the process," the mathematician replies.

"How can you POSSIBLY visualize something that occurs in 9-dimensional space?"

"Easy, first visualize it in an N -dimensional space with $N=1$, then let N go to $9!$ "

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