

Student Seminar

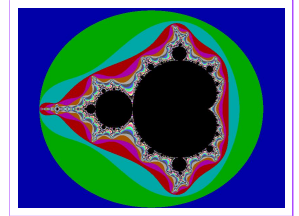
Pi Mu Epsilon

& GAMECOCK MATH CLUB



Matthew Ziemke

An Introduction to The Mandelbrot Set



The Mandelbrot Set

When we initially study geometry, we typically study objects such as lines, circles, and rectangles. Unfortunately these shapes rarely show up in nature. For example, what would you say is the shape of Mt. Everest? Or maybe the shape of the tree outside your window? One property Mt. Everest and the tree have in common is self-similarity, i.e., smaller sections of the shape are similar to the whole (a tree limb looks similar to a tree). We now designate shapes such as these as fractals.

The Mandelbrot set is a compact subset of the complex plane with many interesting properties. The drive behind the definition of the Mandelbrot set was to have it be a “catalog” of a particular class of fractals but with the aid of computers in the early 1980’s we soon realized the set seemed to be a fractal itself. In this seminar we will discuss some of the known properties of the Mandelbrot set along with its connection to fractals.

Tue. 21st Feb. 2012

7:00 pm

LeConte 310

after the PME Spring Initiation Ceremony

Matt Ziemke is a mathematics graduate student at USC.

Google *Mandelbrot Zoom* for some entertaining zooms into the Mandelbrot set to get a visual image of fractals.

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