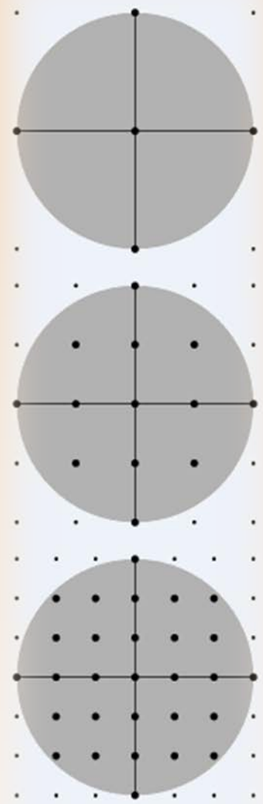
Radical Pi presents:

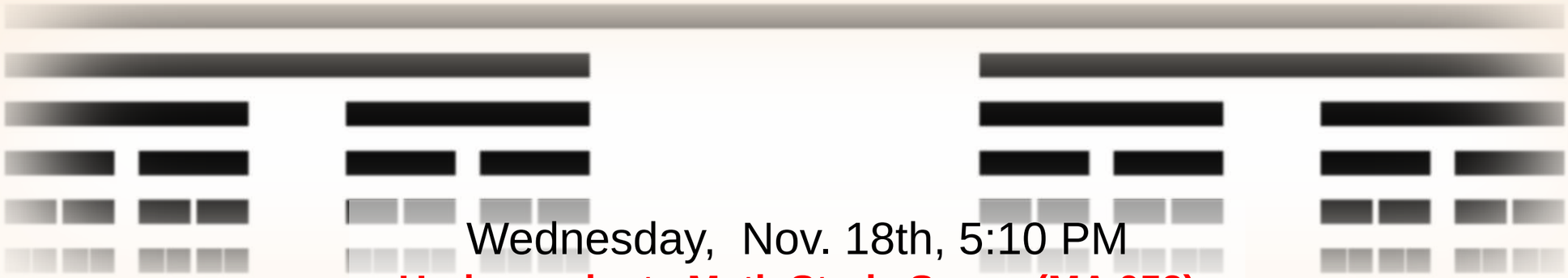
Counting problems: the lattice and beyond

by Professor Krystal Taylor

How many points with integer coordinates are contained in a disk centered at the origin of radius $t>0$? It is intuitive that the answer is approximated by the area of the disk. What is not so clear is a bound on the error. In the beginning of the 19th century, it was conjectured by Hardy that the error is bounded by a constant multiple of $\sqrt{t}$. This problem is still unsolved, but much progress and mathematics has been built up around it. We will look at some simple but beautiful techniques for estimating the error. We will also make some connections between this problem and different areas of math.



In addition, we will look at a simple but interesting fact about the so-called “fat” Cantor set, C, which is constructed by removing the middle fourth from the unit interval, and then removing the middle $1/2^n$ from each subsequent interval at stage n.



Wednesday, Nov. 18th, 5:10 PM

Undergraduate Math Study Space (MA 052)

Free Pizza