1147-05-541 **Joe P Chen*** (jpchen@colgate.edu), Department of Mathematics, Colgate University, 13 Oak Drive, Hamilton, NY 13346. *Fractals, tilings, and chip-firing on the Sierpinski gasket.*

Start with m chips at the origin of an infinite connected graph, and topple each vertex according to the rules of the abelian sandpile model, a.k.a. the chip-firing game. Upon stabilization, what does the sandpile cluster look like? How does the cluster radius vary with m? What about patterns (of $0, 1, 2, \cdots$ chips) in the cluster?

I will quickly review what is known about this problem on the square lattice, in particular, the fractal patterns and the polygonal shape of the limiting cluster. This leads to the question of whether fractal patterns may also appear on other graphs, for example, a self-similar fractal graph. The answer is a resounding YES on the Sierpinski gasket. In fact, there are two types of fractal patterns: one that can be stitched up using "sandpile tiles," and another that is a concatenation of the first n iterations of the Sierpinski arrowhead curve. These findings led to the proof of an exact recursive formula for the growing sandpile radius, which is reported in arXiv:1807.08748.

The goal of my talk is to take you on a visual tour of fractals in a sandpile—on a fractal. No prerequisites are assumed. (Received January 26, 2019)