1125-60-3158 **Michael Damron***, School of Mathematics, Skiles Building, 686 Cherry St., Atlanta, GA 30332.
*Introduction to random growth models (2 lectures)*

Random growth models come from physics and biology and can describe the motion of interfaces or the spread of infections. Mathematically, they can show interesting non-traditional limiting behavior. Two examples are first-passage percolation (FPP) and last-passage percolation (LPP). An infection is set on a $d$-dimensional lattice and spreads across edges using nonnegative random passage times $t_e$ on edges in FPP, and on vertices in LPP. In FPP, infections take paths of least time, but in LPP, they take directed paths of maximal time. An infection from $x$ infects $y$ at time $T(x, y)$ and at time $t$, an infection from 0 occupies a region $B(t)$ of $\mathbb{Z}^d$.

First, we will cover some basic probability, then focus on convergence of the rescaled region $B(t)/t$ to a limiting shape $\mathcal{B}$. Little is known about $\mathcal{B}$ except in exactly solvable cases, but we will discuss conjectured properties (differentiability and curvature of $\partial\mathcal{B}$) and some proved properties, along with recent variational formulas. Then we will move to rate of convergence to $\mathcal{B}$, which is studied through the geometry of geodesics and scaling exponents. (Received September 30, 2016)