Random numerical semigroups

Abstract:
A numerical semigroup is a subset of the natural numbers which is closed under addition. Consider a numerical semigroup $S$ selected via the following random process: fix a probability $p$ and a positive integer $M$, and select a generating set for $S$ from the integers $1, 2, \ldots, M$ where each generator has probability $p$ of being selected. What properties can we expect the numerical semigroup $S$ to have? For instance, how many minimal generators do we expect $S$ to have? In this talk, we answer several such questions, and describe some surprisingly deep geometric and combinatorial structures that arise naturally in this process. No familiarity with numerical semigroups or probability will be assumed for this talk.

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