

1145-05-2170 **Lily Silverstein*** (lsilver@math.ucdavis.edu). *Random Monomial Ideals*.

Probability is a now-classic tool in combinatorics, especially graph theory. Some applications of probabilistic techniques are: describing the typical/expected properties of a class of objects, uncovering phase transitions and sudden thresholds in the dependence of one property on another, and producing examples of extremal or conjectured objects.

I'll introduce some random models for monomial ideals, which generalize existing models for graphs and simplicial complexes, and give a sample of results from the three categories mentioned above. In particular, I'll describe several algebraic invariants (e.g., Krull dimension and projective dimension) which exhibit interesting thresholds in the model parameters.

This talk is based on two papers:

Random Monomial Ideals, with Jesús A. De Loera, Sonja Petrović, Despina Stasi, and Dane Wilburne. Preprint: arXiv:1701.07130, to appear in *Journal of Algebra*, and

Average Behavior of Minimal Free Resolutions of Monomial Ideals, with Jesús A. De Loera, Serkan Hoşten, and Robert Krone. Preprint: arXiv:1802.06537, to appear in *Proceedings of the AMS*. (Received September 24, 2018)