

1124-05-131 **Anant Godbole*** (godbolea@etsu.edu), **Thomas Grubb** (grubbtho@msu.edu), **Kyutae (Paul) Han** (kyutae.han93@gmail.com) and **Bill Kay** (bill.w.kay@gmail.com). *Threshold Progressions in Various Covering and Packing Contexts*. Preliminary report.

Using methods (due to Janson, Stein-Chen, and Talagrand) from probabilistic combinatorics, we explore the following general theme: As one progresses from each member of a family of objects \mathcal{A} being covered by at most one object in a random collection \mathcal{C} , to being covered at most g times, to being covered at least once, to being covered at least g times, a hierarchy of thresholds emerge, which show when the required property holds with high or low probability. Moreover, the threshold is often multiplicative for packings, and additive for coverings. Examples will be from extremal combinatorics; set systems; combinatorial design theory; and additive number theory. This talk is based on joint work with Thomas Grubb (Michigan State University), Kyutae Han (UCLA) and Bill Kay (Emory University). (Received September 05, 2016)