

MA TH EM AT IC AL PH YS IC S SE MI NA R

Rutgers University
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Thresholds and expectation thresholds

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Abstract

Thresholds for increasing properties are a central concern in probabilistic combinatorics and elsewhere. (An *increasing property*, say \mathcal{F} , is a superset-closed family of subsets of some (here finite) set X ; the *threshold question* for such an \mathcal{F} asks, roughly, about how many random elements of X should one choose to make it likely that the resulting set lies in \mathcal{F} ? For example: about how many random edges from the complete graph K_n are typically required to produce a Hamiltonian cycle?)

We'll discuss recent progress and lack thereof on a few threshold-type questions, and try to say something about a ludicrously general conjecture of $G.$ Kalai and the speaker to the effect that there is *always* a pretty good naive explanation for a threshold being what it is.