Nucleation and Spread of an Invasive Allele[1] GYORGY KORNISS,
JOSEPH YASI, Rensselaer, THOMAS CARACO, SUNY at Albany — We analyze a
prototypical discrete spatial model for the spread of an invasive allele when individuals compete preemptively for common limiting resources. Initially, the population is
genetically monomorphic with the resident allele at high density. The invasive allele
is introduced through rare, but recurrent, mutation. The mutant allele is the better
competitor (has an individual-level advantage) but its spread is limited by the local
availability of resources. We find that each successful introduction of the mutant
leads to strong spatial clustering. Spatial patterns in simulation resemble nucleation
and subsequent growth, articulately described by Avrami's law in sufficiently large
systems[2].

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