

Explosive percolation in molecular evolution

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We analyze an autocatalytic model for evolution of linear polymers. The system concatenates linear polymers either spontaneously or autocatalytically, eventually leading to a giant polymer, exhibiting a percolation phase transition. Ordinary percolation phase transitions show self-averaging. Here, we analyze the transition to an autocatalytical growth with respect to (non) self-averaging behaviors. We find a rich dynamical behavior, i.e., for autocatalytical growth a staircase of the order parameter.