

Abstract Submitted  
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**Fitness, environmental changes and the growth of modularity- a quasispecies theory for the evolutionary dynamics of modularity** LIANG NIESTEMSKI, Western New England University, JEONG-MAN PARK, The Catholic University of Korea, MICHAEL DEEM, Rice University — Although the modularity of a biological system is demonstrated and recognized, the evolution of the modularity is not well understood. We here present a quasispecies theory for the evolutionary dynamics of modularity. Complemented with numerical models, this analytical theory shows the calculation of the steady-state fitness in a randomly changing environment, the relationship between rate of environmental changes and rate of growth of modularity, as well as a principle of least action for the evolved modularity at steady state.

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