Coupling ecological and evolutionary dynamics in a stochastic model of multiple-gene interactions RALPH DESIMONE, Department of Physics and Astronomy, Arizona State University, ANKANA BOONDIREK, Department of Applied Mathematics, Mahidol University, Bangkok, TIMOTHY NEWMAN, Department of Physics and Astronomy, Arizona State University — In this talk we discuss the "genome template model" (GTM) which we have recently introduced in order to connect fluctuations in a genotypically heterogeneous population to evolutionary processes such as adaptation and selection. This connection is explicitly made by modeling reproduction and mortality as polygenic traits, coupled, within each individual, to an underlying genome. We will highlight two properties of the GTM: i) high fitness "ridges" in genotype space which are a direct consequence of gene interactions, and ii) evolution of spatial polymorphism on environmental gradients.

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