

MAR12-2011-004047

Abstract for an Invited Paper
for the MAR12 Meeting of
the American Physical Society

Optimal lineage principle for age-structured populations

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Populations whose individuals exhibit age-dependent growth have often been studied using temporal dynamics of age distributions. In this talk, I examine the dynamics of age along lineages. We will see that the lineage point-of-view provides fundamental insights into evolutionary pressures on individuals' aging profiles. I will describe a variational principle that enables exact results for lineage statistics, in a variety of models. I will also discuss measurements on continuously dividing bacterial populations growing in microfluidics devices.