

USC Department of Mathematics
PROBABILITY & STATISTICS SEMINAR

3:30 PM, Friday 10.Oct.08
249 Kaprielian Hall
(Refreshments served at 3 PM)

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A waiting time problem arising from the study of multi-stage carcinogenesis

We consider a model of a population of fixed size N in which each individual gets replaced at rate one and each individual experiences a mutation at rate u . We calculate the asymptotic distribution of the time that it takes before there is an individual in the population with m mutations. A variety of different behaviors are possible, depending on how u changes with N . These results have applications to the problem of determining the waiting time for regulatory sequences to appear and to models of cancer development. This talk is partly based on joint work with Rick Durrett and Deena Schmidt.