

A SPATIAL MODEL OF CANCER INITIATION: APPROXIMATIONS AND APPLICATIONS

J. Foo, University of Minnesota, USA, jyfoo@umn.edu

In this talk I will continue the discussion of Kevin Leder on the the problem of cancer initiation. Specifically I will introduce an approximation to the spatial Moran process based on the Bramson-Griffeath shape theorem that can be used to determine the asymptotic properties of the time until cancer initiation events occur. This approximation will identify three distinct regimes by which cancer initiation can occur, each regime producing distinct spatial behaviors and initiation times. I will conclude by using these asymptotic results to discuss some estimates of spatial heterogeneity in tumors in solid tissue. Joint work with K. Leder, R. Durrett, and M. Ryser.