

1063-60-205

Sheldon Ross* (smross@usc.edu), Dept. Of Industrial and Systems Eng, Univ. of Southern California, Los Angeles, CA. *Systems of Dependent Components*.

We consider a system composed of n components, each of which works for a random time and then fails. Two general models that result in dependent component lifetimes are presented. The first supposes that there is a random process of environmental shocks. Attached to each shock is an n -vector, with result that the instantaneous failure rates of the components increase by the amounts specified by this vector. The second model supposes that the failure of component i causes the instantaneous failure rate of component j to increase by a specified amount $c(i,j)$. We present results related to life distributions, component life dependency properties, and efficient simulation. (Received August 16, 2010)