

1077-60-1309

Alan Krinik* (ackrinik@casupomona.edu), 3801 West Temple Avenue, Department of Mathematics and Statistics, Cal Poly Pomona, Pomona, CA 91768, and **Gerardo Rubino**. *The Single Server Restart Queueing Model*. Preliminary report.

Consider the classical single server queueing system subject to three different types of possible catastrophes represented by new states: -3, -2, -1. The recovery rates from these catastrophes vary and are dependent upon the severity of the occurring catastrophe. When a catastrophe occurs the system undergoes a restart birth sub-process to resume a single server system with no customers present. The transient probability functions of this system are determined using dual processes, lattice path combinatorics and randomization. The solution approach also works to solve systems having similar but more general multiple-catastrophe configurations. (Received September 19, 2011)