

**Meeting:** 998, Houston, Texas, SS 9A, Special Session on Probability and Stochastic Processes

998-60-246

**Aliakbar Montazer Haghghi\*** (aliakbar\_haghghi@pvamu.edu), Department of Mathematics, Prairie View A & M University, Prairie View, TX 77446, and **Dimitar P. Mishev** (dimitar\_michev@pvamu.edu), Department of Mathematics, Prairie View A & M University, Prairie View, TX 77446. *Analysis of a Conveyor Model Viewed as a Priority Queueing System with Finite Buffers.*

In this paper a conveyor model is viewed and analyzed as a two-station parallel multi-server priority queueing system with balking and reneging. This model is a different version of a problem Disney [9, 10] posed and solved by a matrix method and Gupta [19] gave a generating function solution. We offer an algorithm for solution of the general and a special case of this model. Under a mild assumption, we find an explicit closed-form distribution of the queue length in a stationary process. We use matrix method in a numerical example and find the distribution of the queue length, probability of the system to be idle, probability of losing units, probability of stations being busy, and the first two moments. The economics features of the model can be studied since we offer the distribution and moments of length of the waiting time.

(Received February 28, 2004)