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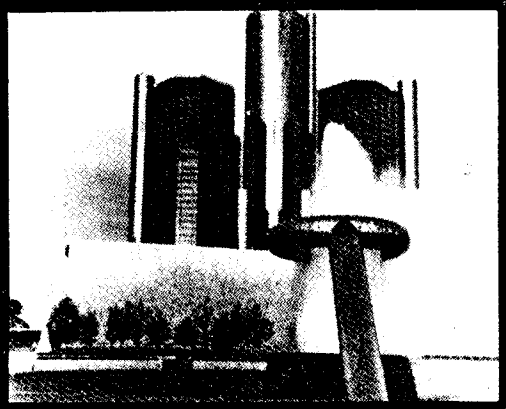

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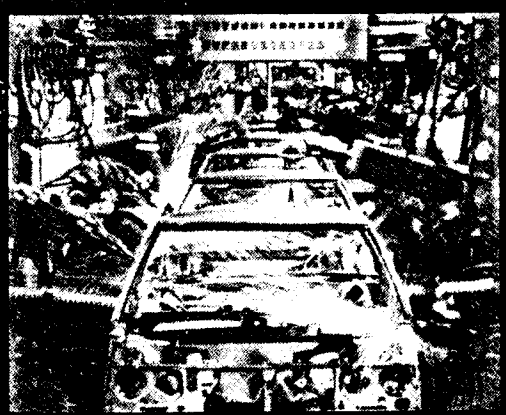

AUTO PRODUCTION LINE

STOCHASTIC CONTROL--CONTROL OF QUEUES

Sponsor: TIMS COLLEGE ON APPLIED PROBABILITY

Chair: VARAIYA, PRAVIN Department of Electrical Engineering, University of California, Berkeley, CA 94720.

TA4.05-3 **Adaptive Control of Two Competing Queues** *Baras, John S.* Electrical Engineering Department, University of Maryland, College Park, MD 20742. *Dorsey, Arthur J.* IBM, Gaithersburg, 18100 Frederick Pike, Gaithersburg, MD 20878.

We consider the problem of optimally allocating the time of a server to two parallel queues. First we consider the problem when the queue sizes are observed, although the arrival and departure rates are not available, but have to be estimated. We next consider the problem when the arrival process is observed, but its rate is unknown, while the departure process is not observed and its rate known within certain bounds. In both cases adaptive control schemes are developed. The performance criterion used is aggregate delay.