1139-90-266 **Jefferson Huang*** (jh2543@cornell.edu), School of ORIE, Cornell University, Ithaca, NY 14853. *Dynamic Scheduling and Maintenance of a Deteriorating Server.* Preliminary report.

Motivated by a quality control problem in semiconductor manufacturing, we consider a stochastic scheduling problem in the context of a multi-class queue with a single server whose service capacity deteriorates randomly over time. We show that the system may be unstable under a natural extension of the $c\mu$-rule, and provide a sufficient condition for this rule to be optimal. We also consider the problem of jointly deciding whether to perform service or preventive maintenance, for which we provide insights into the structure of optimal policies and heuristics. (Received February 13, 2018)