

**SOMS Friday Seminar**  
**February 1, 2008**  
**SMC 305**  
**2:30-3:25**

## **The Unavailability of a Duplex Processor with a Single Traveling Repair Person**

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### **ABSTRACT**

A two-unit parallel system experiences an outage only when both units are down at the same time. We consider the situation when the system undergoes repair by a single repairperson. We assume that the repairperson must travel to the repair site and once the repairperson is at the site no further travel is needed if the second unit goes down while the first one is being repaired. We provide a formula for the unavailability in this situation assuming that the units' lifetimes are exponential while the travel time and repair time have arbitrary distributions. Our results are different from previous results that simply add travel time to repair time, which overestimates the unavailability. However, the percent overestimation is rather small ranging from less than 0.001% to 1% in most practical applications although the theoretical maximum overestimation could be up to 27%. So it follows that in practice, not very much harm is done by adding travel time to repair time.

**Refreshments provided after seminar**