

**Indiana University-Purdue University
Indianapolis**
Department of Mathematical Sciences

STATISTICS SEMINAR

12:15pm—1:15pm, Tuesday, September 18, 2018
LD 265

Speaker: **Vahid Andalib**
Department of Mathematical Sciences, IUPUI

Title: **A Standby System with Two Types of Repair Persons
and Two Spare Units**

Abstract:

A continuously monitored one-unit system, backed by two identical standby units, is perfectly repaired by an in-house (regular) repair person, if doable within a random or deterministic patience time, or else by a visiting expert, who repairs one or all failed units faster, and of course with higher cost, before leaving. We study four possible models based on the number of repairs done by expert (single or multiple), and the patience time to be random or deterministic. The models are analyzed in terms of limiting availability and limiting profit per unit time criteria, using semi-Markov processes, when all distributions are exponential. We show that our proposed system performs better than the one backed by only one standby unit in terms of both criteria. Furthermore, it is shown that multiple repairs done by expert increases both criteria for the system. The results are illustrated by a numerical example.