



# UH INFORMS Lecture Series

SPRING 2008

*presents*

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*University of Texas - Austin*

**Title:** Integrated Logistics Network Design and Inventory Stocking  
for Low-Demand Parts: Modeling and Optimization

**11:00 am -12:00 pm      Friday, February 22, 2008**  
**102 D, Eng. Building D2**

## ABSTRACT

We model, analyze, and develop solution techniques for an integrated network design and inventory stocking problem. The problem captures important features of a real service part logistics system: very low demand parts, time-based service level requirements, and geographically dispersed customers with stochastic demands satisfied by strategically located facilities operating with one-for-one replenishment policy. Along with usual location and allocation decisions, the model also considers stock levels and fill rates as decision variables, optimally controlled across facilities to achieve system-wide target service levels. We use a variable substitution scheme to develop an equivalent convex model for an originally nonconvex problem, and then use outer-approximation to linearize the convex model. We propose exact solution techniques based on the linearized model, and devise computationally less demanding lower and upper bounding methods for the problem. Our results from extensive computational experiments on variety of problem instances based on real-life industrial data show the effectiveness of the overall approach.

Details can be found at <http://www.uh.edu/~informs/events/events.htm>.

If you have any questions regarding this event, please contact Dr. Gino Lim at 713-743-4194 or at [ginolim@uh.edu](mailto:ginolim@uh.edu).