

**NYU Stern School of Business**  
**Department of Information, Operations & Management Sciences**  
**OPERATIONS MANAGEMENT RESEARCH SEMINAR**

**TOPIC: Markdown Optimization for Fashion e-tailer: The Impact of Returning Customers**

**SPEAKER: Georgia Perakis (MIT)**

**DATE: Wednesday, October 24, 2012**

**TIME: 11:00 AM-12:30PM**

**PLACE: 5-90 KMC**

**ABSTRACT**

The study a model for markdown optimization, i.e. how to set prices to maximize revenues from selling a fashion good, in the context of an e-tailer. Due to the convenience of Internet shopping, a significant proportion of customers may wait for the price of a fashion item to decrease, strategically returning multiple times to check on the price. This is an important issue that e-tailers need to account for when pricing their products. In this talk, we propose and study a model that incorporates returning customer behavior. We focus on the case of a monopolist e-tailer selling a single product over a finite horizon. For classes of demand functions, we develop convex reformulations that are tractable. We derive general insights on pricing strategies in the presence of returning customers. We compare the revenue of a myopic pricing policy (i.e. which treats returning customers the same as first-time customers), to the optimal pricing policy. This allows us to understand the value of smart pricing.

[This paper is joint work with Pavithra Harsha from IBM Research and Zachary Leung from the ORC, MIT]

**Bio**

Georgia Perakis is the William F. Pounds Professor at the Sloan School of Management at MIT since 1998. She received an M.S. degree and a PhD in Applied Mathematics from Brown University. In the Spring of 2006 she visited for her sabbatical Columbia University. Georgia Perakis' research interests include applications of optimization in revenue management, pricing, energy application, supply chain management and transportation. She has widely published in journals such as Operations Research, Management Science, POM, Mathematics of Operations Research and Mathematical Programming among others. She has received the CAREER award from the National Science Foundation and subsequently, the PECASE award from the office of the President on Science and Technology awarded to the 50 top scientists and engineers in the nation. She has also received an honorable mention in the TSL Best Paper Award, the second

prize in 2011 and the first prize in 2012 in the Best Paper competition of the INFORMS Service Science Section for two of her papers, the Graduate Student Council Teaching Award for excellence in teaching and the Samuel M. Seegal prize. Perakis was the recipient of the Sloan Career Development Chair and subsequently of the J. Spencer Standish Career Development Chair. In 2009, Perakis received the William F. Pounds chair that she currently holds. Perakis has passion supervising her students and builds lifelong relationships with them. So far she has graduated twelve PhD and nineteen Masters students. She has been awarded recently the Samuel M. Seegal prize at MIT for "inspiring student to pursue and achieve excellence".

Perakis is currently serving as the co-director from the MIT Sloan School side for the Leaders for Global Operations (former LFM) program. She is also currently the group head of the Operations Management at MIT Sloan. She serves as an Associate Editor for the journals Management Science, Operations Research and Naval Logistics Research and a senior editor for POM and a senior editor for journal Networks and Spatial Economics. Perakis has served as a member of the INFORMS Council. She served as the chair of the Pricing and Revenue Management Section of INFORMS and in 2009-2010 as the VP for Meetings of the MSOM Society of INFORMS. She has co-organized the MSOM 2009 conference and served in the organizing committee of the 2010 MSOM conference. She has also been the co-chair and co-organizer of the Annual Conference of the INFORMS Section on Pricing and Revenue Management for several years and the chair of the cluster on the same topics for the annual INFORMS conference for several years.