

## Management Science Seminar

# Going Bunkers: Inventory Replenishment meets Route Selection

**Prof Sergei Savin**

Columbia University – Graduate School of Business

Thursday, June 8<sup>th</sup>, 2006

Time: 3pm to 4pm

Room: Lecture Theatre 9

**Abstract:** Managing rising fuel costs is often cited as a single most important factor impacting the bottom line of marine shipping companies. Even a single-vessel fuel-cost minimization problem for a typical shipping company turns out to be a rather complex inventory management task in which future fuel prices at different potential refueling locations are highly uncertain and the on-board fuel capacity is limited. We consider a marine shipping company which owns a mixed fleet of “liners” (ships whose routes are fixed in advance) and “trampers” (ships for which future route components are uncertain) and formulate the fuel-cost minimization problem as a finite-horizon stochastic dynamic program. We provide characterization of the optimal refueling policies and introduce several simple-to-implement heuristics whose performance is gauged using real-life data. (Joint Work with Omar Besbes, Columbia Business School)

**Bio:** Sergei is an Associate Professor in the Decision, Risk & Operations Department at Columbia Business School. He holds a Ph.D. in Physics and a Ph.D. in Operations and Information Management, both from the University of Pennsylvania. His research interests include Diagnostic and Service Capacity Management in Health Care, Revenue Management, Stochastic Control Applications in Service Operations, New Product Diffusion Models, and Marketing/Production Coordination.