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# The Supernetwork Sentinel

## The Newsletter of the Virtual Center for Supernetworks

### Summer 2011



Welcome to the Summer 2011 edition of **The Supernetwork Sentinel**, the newsletter of the Virtual Center for Supernetworks at the Isenberg School of Management, UMass Amherst. **The Supernetwork Sentinel** is published in Fall, Winter, and Summer editions. The newsletter's purpose is to keep you informed of events, activities, and successes of the Virtual Center for Supernetworks, the Center Associates, and the Supernetworks Laboratory for Computation and Visualization. In this newsletter, we highlight our recent conference presentations and other professional activities. We also share news about awards and accolades received by the Center Associates, their activities, and noteworthy upcoming events. As always, we include a list of our recent Center publications.

Anna Nagurney  
John F. Smith Memorial Professor  
Director – Virtual Center for Supernetworks  
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**Participants in the 2011 SBP Conference at the University of Maryland College Park**

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## Meet the Executive Initiative a Big Success



**Mr. Schneider after his presentation**

Following our long-running [Speaker Series](#), we began a new initiative this past semester – *Meet the Executive*. On February 11, we hosted Mr. Marc Schneider, the Group President of Dress Furnishings at Phillips Van Heusen (PVH), of NYC. The students of the UMass Amherst INFORMS Student Chapter help Professor Anna Nagurney to organize this new speaker series.

Mr. Schneider, who is an alum of our School of Management, was simply fantastic.

### **Some tips from Mr. Schneider's lecture and a fabulous Q&A that followed:**

You should go for a career and not for a "job." He spoke about how he began his career at Macy's and benefited from its outstanding training program.

What creates success? -- preparation, clarity of objectives, and putting the work in! Do not be outworked!

Those who succeed aren't necessarily smarter -- whatever profession you select, you must be good at it. The successful ones are the ones who have worked the hardest. Make sure that you do your homework.

In business, you must know finance, marketing, logistics, and organizational behavior.

It was an honor and distinct pleasure to be able to host one of our most distinguished alums and we look forward to additional visits from executives to the Isenberg School!



**The audience at Mr. Koswick's presentation**

On April 15, we hosted Mr. Kevin Koswick of Ford in our second "Meet the Executive" event. Mr. Koswick is the Executive Director of Ford's North American Fleet, Lease and Remarketing Operations. In this role, he oversees the largest commercial and government operation in the industry, as well the remarketing of all Ford Vehicles in North America. In addition, he has brand responsibilities for all Ford Commercial Vans, Chassis Cabs, Police Vehicles, Taxis, Limousines, Livery and Recreational Vehicles.

Mr. Koswick is also an alum and received his MBA from UMass Amherst in 1985 and is based in Detroit at Ford's corporate headquarters.

### **His three *takeaway points* from his presentation:**

1. Your personal habits matter. Work very hard and always be prepared.
2. Respect everyone. Managing up doesn't work. People who take care of others, do better. Don't be competitive at the expense of others.
3. You need to have common business sense. Persevere and make things happen.



**Lunch at the University Club afterwards**

## Session at the AAAS Conference Draws the Media



**Professor Anna Nagurney prior to her AAAS session in DC**

The [Mathematics and Collective Behavior Symposium](#) at the AAAS Meeting was truly enjoyable. Professor Anna Nagurney was one of three invited panelists and spoke on User-optimized versus System-optimized Travel Behavior.

As for media coverage, an article in *Science News*, entitled, "[Model Copes with Chaos to Deliver Disaster Relief](#)," discussed Nagurney's research with Dr. Patrick Qiang and Min Yu on the [design of supply chains](#) for critical needs products from vaccines and medicines to humanitarian relief supplies as well as research on the [management of perishable, life-saving products as in the case of blood supply chains](#). The latter was conducted with Doctoral Student Center Associate Amir Masoumi.

It also mentioned the work of Iain Couzin, who was a fellow panelist of Nagurney's and whom she first met when they were panelists on the [Traffic: From Insects to Interstates panel at the World Science Festival](#) in NYC in June 2009 and they had a fabulous time at that event, as well.

*The Economist* had coverage of Collective Behaviour (British spelling) in a report on Couzin's research in the article: [Follow my leader: A group's "intelligence" depends in part on its members' ignorance.](#)

Professor Nagurney was also interviewed at the AAAS meeting on the Braess paradox by a journalist for the Italian radio show Moebius.

More media coverage of the activities at the Virtual Center for Supernetworks and its Center Associates can be found on the [center site](#).

## Professor Anna Nagurney Receives the Jane F. Garvey Transportation Leadership Award

On March 24, 2011, Professor Anna Nagurney was honored with the Jane F. Garvey Transportation Leadership Award at an awards banquet at the University of Massachusetts Amherst. The award was presented to her by Mr. Peter Appel, Administrator of RITA, Research and Innovative Technology, of the US Department of Transportation in Washington DC. Professor Nagurney was recognized with this award by the Institute of Transportation Engineers.



**Professor Nagurney with Mr. Appel and the award**

## SBP and POMS Conference Recap

The SBP 2011 Conference took place this year at the University of Maryland College Park, March 28-31. The conference had additional support and funding from NSF, NIH, ONR, AFOSR, and ARO and brought together computer scientists, social scientists from economists to anthropologists, operations researchers and management scientists, applied mathematicians, biologists, medical professionals, cognitive scientists and psychologists, as well as engineers and network scientists!

Special thanks to the Conference Co-chairs, Professor Dana Nau of the University of Maryland and Professor Sun-ki Chai of the University of Hawaii, and to the Program Co-Chairs: John Salerno of the Air Force Research Lab and Professor Jay Yang of the Rochester

Institute of Technology for such an excellently organized conference, the terrific venue, and so many stimulating discussions plus such a delicious set of lunches and coffee breaks!



**Professor Alex "Sandy" Pentland of the Media lab at MIT delivering his tutorial at SBP 2011**

Professor Anna Nagurney was the Tutorial Chair of this conference. Doctoral Student Center Associate Nathan Kollett received a travel award to take part in this conference.



**Amir Masoumi speaking at POMS in Reno**

[The 2011 POMS Conference took place in Reno, Nevada, April 29-May 2.](#) Doctoral Student Center Associates Min Yu and Amr Masoumi presented at this conference on their research with Professor Anna Nagurney on multiproduct supply chain network design in healthcare and on the operations management of blood supply chains, respectively. Min also took part in the doctoral consortium. In addition, Center Associate Professor Patrick Qiang of the Penn State Great Valley campus took part in the Emerging Scholar program.

Also, Dr. Patrick Qiang presented the paper, co-authored with Center Associates: Dr. Trisha Anderson of Texas Wesleyan University, Dr. Ke Ke of Central Washington University, and Dr. June Dong of SUNY Oswego, **The Closed-Loop Supply Chain Network with Competition,**

**Distribution Channel Investments, and Uncertainties,** at the POMS Conference.



**Center Associates Min Yu and Amir Masoumi with other conferees at POMS in Reno**

Conferences are so valuable for exchanging the latest research, for making new connections, and for networking! It is especially important for students to have opportunities to present their research at conferences so that they appreciate the atmosphere of scholarly exchanges and interactions.

Many of the above presentations are posted on the [Visuals Page of the Supernetworks Center website.](#)

## **Center Associate Shine at the First Northeast Regional INFORMS Conference**



The first Northeast Regional INFORMS Conference took place at UMass Amherst, May 6-7, 2011. Dr. Hari Balasubramanian of the Department of Mechanical and Industrial Engineering at UMass Amherst was the Conference Chair and Dr. Les Servi of MITRE and Tamas Terlaky of Lehigh University were the Program Co-Chairs. Professor Anna Nagurney was on the Program Committee and organized the Networks cluster. As part of this cluster, Center Associates Dr. Zugang Liu and Dr. Patrick Qiang organized sessions on, respectively, *Risk Management: Interfaces Between Finance and Operations* and *Supply Chains: Healthcare Delivery Optimization*. Doctoral Student Center Associates Amir Masoumi and Min Yu presented their recent research on critical needs supply

chains and blood supply chains, respectively, at this conference. The conference website is: <http://meetings.informs.org/RegionalNortheastern2011>



**Center Associates at the INFORMS Conference at UMass Amherst**

Special panels were one of the highlights of the conference along with the plenary speakers.



**Dean Fuller welcoming the conferees**

Dr. Mark Fuller, the Dean of the Isenberg School of Management, made opening remarks. Plenary speakers were: Professor David Simchi-Levi of MIT, Dr. Alex "Sandy" of the Media Lab at MIT, and Dr. Brenda Dietrich of IBM.



**Dr. Dietrich of IBM giving her plenary**

Professor Anna Nagurney took part in the *Research in Industry and Academia* panel with Dr. Mary Helander of IBM, Dr. Les Servi, and Dr. Amr El-Bakry of Exxon-Mobil and Doctoral Student Center Associates: Nathan Kollett, Amir Masoumi, and Min Yu, along with Ronrapee Leelawong, were the panelists on *How to Run a Successful Student Chapter*.



**Professor Balasubramanian giving Professor Nagurney her plaque from INFORMS for her service**

Professor Nagurney was recognized by the Conference Chair, Dr. Hari Balasubramanian, for her service in making the conference a success.

The UMass Amherst INFORMS Student Chapter helped out tremendously with this conference and special thanks go to its President, Nathan Kollett, and to its officers and members, for such an outstanding job.



**Chapter Officers and Members with INFORMS Staff at the UMass Amherst Conference**

## Conferences in China Feature Nagurney and Dong as Keynote Speakers

Professor Anna Nagurney delivered the keynote speech, *Supernetworks: Opportunities and Challenges for Decision-Making in the 21<sup>st</sup>*

Century, via videotape, at [the 2011 PAKDD Conference on Knowledge Discover and Data mining](http://supernet.som.umass.edu/audiovideo.htm), held in Shenzhen, China, May 24-27, 2011. Her lecture is available in various media formats on the link below:  
<http://supernet.som.umass.edu/audiovideo.htm>



### The Venue of the Supernetwork Conference in Shanghai

The IEEE Conference on Supernetworks and System Management took place May 29-30, 2011 in Shanghai, China.

The University of Shanghai for Science and Technology (USST) was the venue for this conference.

Professor Anna Nagurney served as the Honorary Chair of the conference along with Professor WANG Ying-Luo, who is a Fellow of the Chinese Academy of Engineering.



### Opening Ceremony of the IEEE Conference in Shanghai

The Conference Co-Chairs were Center Associate Professor June Dong of the State University of New York at Oswego and Professor XU Fu-Yuan of USST.

Center Associate Professor Patrick Qiang was the Organization Committee Co-Chair.



### Professor Dong giving her keynote talk in Shanghai

Professor June Dong delivered the keynote: *Disruptions in Supply Chain Supernetworks*.

Doctoral Student Center Associate Min Yu also attended the conference and presented Professor Nagurney's keynote: *Supernetworks in Healthcare and Humanitarian Operations*.

Other keynote speakers included Professor Hani Mahmassani of Northwestern University and Professor Harry Timmermans of the Eindhoven University of Technology in The Netherlands.



(l-r) Min Yu, Professors Mahmassani and Dong in Shanghai

### Kudos and News

Center Associate Dr. Tina Wakolbinger has left Memphis University and has joined the faculty of the Vienna University of Economics and Business on May 15, 2011 as a Full Professor of Supply Chain Services and Networks. She is also affiliated with the Institute for Transport and Logistics Management. We congratulate Professor Wakolbinger on her new position. She is presently teaching a course on *Global Supply*

Chains there.

Center Associate Dr. Stavros Siokos has left the Vice Presidency of the Piraeus Bank in Athens, Greece and is now the President of the Sciens Fund of Hedge Fund Management in London, England. We congratulate him on his new executive position.

Center Associate Dr. Ding Zhang of the School of Business at SUNY Oswego is on a year's sabbatical leave. He is spending a substantial time in China and while there taught a very successful EMBA course on logistics and supply chain management. He is conducting research on supply chain versus supply chain competition.



**Dr. Anderson with colleagues and her award**

We congratulate Center Associate Dr. Trisha Woolley Anderson, UMass PhD 2010, on her receipt of the John Maddux, Jr. Faculty Award from the Texas Wesleyan University for her exceptional mentoring activities.

Congratulations are also in order to Center Associate Professor Dmytro Matsypura, who received the Wayne Lonergan Outstanding Teaching Award (Early Career) from the University of Sydney in Australia, where he is a tenured faculty member.

We congratulate Min Yu, who successfully defended her doctoral dissertation proposal on April 27, 2011. Professor Anna Nagurney is the chair of her dissertation committee, which also includes Center Associate Professor June Dong. Min's dissertation title: **Analysis, Design, and Management of Supply Chain Networks with Applications to Time-Sensitive Products**. Also, Min received the 2011 Outstanding Doctoral Student Researcher Award from the Isenberg School in ceremonies on May 17, 2011.

Congratulations to Dr. Qiang and Min Yu for the publication of their paper, **Supply Chain Network Design for Critical Needs with**

**Outsourcing**, with Professor Anna Nagurney, which was published in the *Papers in Regional Science* (2011), **90**, 123-142.

Congratulations also to Center Associate Professor Zugang "Leo" Liu of Pennsylvania State University Hazleton for his publications! Dr. Liu's paper with Nagurney, **Supply Chain Outsourcing Under Exchange Rate Risk and Competition**, appears in *Omega* (2011), **39**, 539-549. His paper, also with Nagurney, **Multiperiod Competitive Supply Chain Networks with Inventorying and a Transportation Network Equilibrium Reformulation**, is to appear in *Optimization and Engineering*.

Center Associate Dr. Jose M. Cruz of the School of Business at the University of Connecticut has had his paper, joint with Dr. Liu, **Modeling and Analysis of the Multiperiod Effects of Social Relationship on Supply Chain Networks**, accepted for publication in the *European Journal of Operational Research*.

We congratulate Professor Patrick Qiang on the acceptance of his paper, **A Bi-criteria Measure to Assess Supply Chain Network Performance for Critical Needs Under Capacity and Demand Disruptions**, with A. Nagurney, which has been accepted for publication in a special issue of *Transportation Research A on Network Vulnerability*. Dr. Qiang presented this paper at the INFORMS Conference at UMass Amherst in an invited session.

We welcome Dong "Michelle" Li as a Doctoral Student Center Associate. Michelle completed her first year in the doctoral program in Management Science at the Isenberg School. She is specifically interested in supply chains of hazardous products.



**UMass Amherst INFORMS Student Chapter Officers being recognized by Professor Nagurney at the end of the semester party**

## Recent Center Publications

Please also see our center articles at:  
<http://supernet.som.umass.edu/dart.html>

**Supernetworks: The Science of Complexity**, A. Nagurney, *Journal of University of Shanghai for Science and Technology* (2011), in press.

**Spatial Price Equilibrium and Food Webs: The Economics of Predator-Prey Networks**, A. Nagurney and L. S. Nagurney, in the *Proceedings of the 2011 IEEE Conference on Supernetworks and System Management*, Shanghai, China.

**Sustainable Fashion Supply Chain Management Under Oligopolistic Competition and Brand Differentiation**, A. Nagurney and M. Yu, (2010), to appear in the *International Journal of Production Economics*, Special issue on Green Manufacturing and Distribution in the Fashion and Apparel Industries.

**Fragile Networks: Identifying Vulnerabilities and Synergies in an Uncertain Age**, A. Nagurney and Q. Qiang, *International Transactions in Operational Research* (2011), in press.

**Supply Chain Network Design for Critical Needs with Outsourcing**, A. Nagurney, M. Yu, and Q. Qiang, *Papers in Regional Science* (2011), **90**, 123-142.

**Supply Chain Outsourcing Under Exchange Rate Risk and Competition**, Z. Liu and A. Nagurney, *Omega* (2011), **39**, 539-549.

**Fashion Supply Chain Management Through Cost and Time Minimization from a Network Perspective**, A. Nagurney and M. Yu (2011), in *Fashion Supply Chain Management: Industry and Business Analysis*, Jason Choi, Editor, IGI Global, Hershey, Pennsylvania, in press.

**Modeling and Analysis of the Multiperiod Effects of Social Relationship on Supply Chain Networks**, J. M. Cruz and Z. Liu (2010), to appear in the *European Journal of Operational Research*.

**Multiproduct Supply Chain Network Design with Applications to Healthcare**, A. Nagurney, M. Yu, and Q. Qiang (2010), submitted.

**A Bi-Criteria Measure to Assess Supply Chain Network Performance for Critical Needs Under Capacity and Demand Disruptions**, Q. Qiang and A. Nagurney (2010), to appear in *Transportation Research A*, Special

issue on Network Vulnerability in Large-Scale Transport Networks.

**Multiperiod Competitive Supply Chain Networks with Inventorying and a Transportation Network Equilibrium Reformulation**, Z. Liu and A. Nagurney (2010), to appear in *Optimization and Engineering*.

**Risk Reduction and Cost Synergy in Mergers and Acquisitions via Supply Chain Network Integration**, Z. Liu and A. Nagurney (2010), to appear in the *Journal of Financial Decision Making*.

**Supply Chain Network Operations Management of a Blood Banking System with Cost and Risk Minimization**, A. Nagurney, A. Masoumi, and M. Yu (2010), revised and resubmitted.

**Dynamics and Equilibria of Ecological Predator-Prey Networks as Nature's Supply Chains**, A. Nagurney and L. S. Nagurney (2011), revised and resubmitted.

## The Center Director and the Center Associates thank you for your support!

### Center Director

Dr. Anna Nagurney  
John F. Smith Memorial Professor

### Center Associates

Dr. Jose M. Cruz  
Dr. Patrizia Daniele  
Dr. June Dong  
Dr. Ke "Grace" Ke  
Dr. Zungang "Leo" Liu  
Dr. Dmytro Matsypura  
Dr. Ladimer S. Nagurney  
Dr. Qiang "Patrick" Qiang  
Dr. Padma Ramanujam  
Dr. Stavros Siokos  
Dr. Tina Wakolbinger  
Dr. Trisha Woolley  
Dr. Ding Zhang  
Dr. Lan Zhao

### Doctoral Students

Nathan Kollett  
Dong "Michelle" Li  
Amir Masoumi  
Min Yu

### Center Website:

<http://supernet.som.umass.edu>

If you would like to be put on our email list, contact: [supernet@som.umass.edu](mailto:supernet@som.umass.edu)