

The Supernetwork Sentinel

Fall 2013

Welcome to the Fall 2013 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 invited talks, accolades received at the INFORMS Minneapolis conference, and other accomplishments of the Center Associates as well as conference presentations that we have given and other news. As always, we also include a list of our recent Center publications.

Anna Nagurney
 John F. Smith Memorial Professor
 Director – Virtual Center for Supernetworks
<http://supernet.isenberg.umass.edu>



Professor Anna Nagurney after her commencement speech at the School of Business, Economics and Law in Gothenburg, Sweden, while on sabbatical there as a Visiting Professor



Several Center Associates with friends at the Women in Operations Research and the Management Sciences (WORMS) lunch at INFORMS Minneapolis, October 8, 2013

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Recent Center Publications

Professor Anna Nagurney Gives Invited Talk at ETH Risk Center Workshop in Zurich, Switzerland

The Center Director Professor Anna Nagurney was an invited speaker at the Workshop on Vulnerability and Resilience of Supply Chains. The workshop took place at the ETH Risk Center in Zurich, Switzerland, September 12-13, 2013. Her presentation was on "Networks Against Time: from Food to Pharma" and it [may be downloaded here](#).



Professor Anna Nagurney presenting in Zurich

The two day workshop had representatives from academia, companies, and government, and included not only great talks, but there were also lively discussions on supply chain management, supply chain risk management, systemic risk, various methodologies, applications, and, of course, insurance. Professor Nagurney was very impressed by the freedom of discussion and the intellectual exchanges <http://www.soms.ethz.ch/workshop2013>

Professor Nagurney thanks the organizers for outstanding accommodations, venue, and hospitality.

Many Accolades at INFORMS Minneapolis Conference

The INFORMS 2013 Annual Meeting took place October 6-9, 2013 in Minneapolis, Minnesota. It was an outstanding conference professionally and socially! Also, at this major conference, Center Associates were recognized with 3 major awards from INFORMS.

First, Dr. Amir H. Masoumi received the 2013 Judith B. Liebman Award from INFORMS for his work with the UMass Amherst INFORMS Student Chapter while he was a doctoral student at the Isenberg School of Management. He had served as an officer and coordinated the Speaker Series over many semesters. Dr. Masoumi is the third Center Associate to be recognized with this award. Dr. Patrick Qiang of the Graduate School of Professional Studies at Penn State University

Malvern had received this award before as had Dr. Tina Wakolbinger, now a Professor at the Vienna University of Economics and Business in Austria.



(l-r) Dr. Olga Raskina, Dr. Amir H. Masoumi with his award plaque, and Dr. Anne Robinson, President of INFORMS

Also, at the Minneapolis conference, the Center Director was one of [twelve INFORMS Fellows elected in the year 2013](#).



The 2013 elected INFORMS Fellows with Dr. Anne Robinson and Dr. Frieda Granot, the Chair of the 2013 Selection Committee

Professor Nagurney was recognized with this prestigious award for *her distinguished leadership as an operations research educator and ambassador, through her extensive contributions to the concepts and properties of transportation and supply chain networks* according to the INFORMS citation. She is very honored to be recognized with this lifetime achievement award by the professional society INFORMS, which has over 10,000 members.

It seems that "good news does come in threes." And, at the very same conference, the UMass Amherst INFORMS Student Chapter, that Professor Anna Nagurney has been the Faculty Advisor of since 2004, and for which many of her doctoral students have served as officers of over the years, was recognized with the Magna Cum Laude Award for its activities in 2012. The chapter has been annually recognized with an award from INFORMS since INFORMS started giving out such chapter awards back in 2006.



Several chapter officers with Drs. Raskina and Robinson receiving the Magna Cum Laude Award

Center Associates Busy Presenting at Conferences

Since our last newsletter, we have presented at several conferences with many more presentations scheduled for the Fall 2013.

The Center Associates were well represented at the [Euro INFORMS Conference in Rome, Italy](#). Center Associate Professor Patrizia Daniele of the University of Catania in Italy organized several sessions at this conference on variational inequalities and Center Associates Professor Tina Wakolbinger of the Vienna University of Economics and Business, Professor Jose M. Cruz of the School of Business at the University of Connecticut, and Professor Dmytro Matsypura of the School of Business at the University of Sydney in Australia, presented their research.



Several Center Associates with friends in Vienna

In addition, Professor Tina Wakolbinger was the local organizing partner for the [18th International Symposium on Logistics with the theme Resilient Supply Chains in an Uncertain Environment](#), which took place in Vienna, Austria, July 7-10, 2013. Joining her were Center Associates Dr. Jose Cruz and Dr. Dmytro Matsypura.



Several Center Associates with Joanne Oh (I) at INFORMS Minneapolis

Center Associates were very busy presenting papers at INFORMS Minneapolis, which took place, October 6-9, 2013. Center Associate Professor Jose Cruz organized a great session: [Sustainable and Responsible Supply Chain Management](#), at which 3 papers by members of the Supernetwork Center were presented, including a paper by Professor Trisha Anderson of Texas Wesleyan University and a paper by Professor Tina Wakolbinger of Vienna co-authored with Professor Fuminori Toyasaki of York University in Toronto with Thomas Nowak (Tina's doctoral student).

Center Associate Professor Patrick Qiang of Penn State Malvern presented his latest work in [a best paper Service Science session](#).

Our Supernetwork Center colleague, Professor Dmytro Matsypura from the University of Sydney in Australia, who was on sabbatical at the University of Pittsburgh, [spoke on his work with Professors Kalinowski and Savelsbergh](#) (who was elected an INFORMS Fellow in 2013).

Center Associate Professor Amir H. Masoumi presented [our latest work on humanitarian logistics and disaster relief done also with Center Associate Professor Min Yu of the University of Portland](#). Min also spoke on our [competitive food supply chain research](#), which was recently published in the *European Journal of Operational Research*.

Doctoral Student Center Associate Dong "Michelle" Li, spoke on [our work on pharmaceutical supply chains and outsourcing](#), which was published in the *International Transactions in Operational Research*.

The Center Director spoke on the [network economics of cyber crime](#), which is the result of a grant and multidisciplinary collaboration with colleagues at UMass Amherst and the Isenberg School. INFORMS videotaped this presentation.

The above is not even an exhaustive list of the presentations that Supernetwork Center Associates gave at the INFORMS conference but it gives an idea of the breadth and depth of our research activities.



(l-r) Dong "Michelle" Li, Professor Anna Nagurney, Dr. Padma Ramanujam of SAS, and Professor Min Yu enjoying a meal in Minneapolis

The INFORMS Minneapolis conference was also extra special because our latest book, **Networks Against Time: Supply Chain Analytics for Perishable Products**, co-authored by Associates Anna Nagurney, Min Yu, Amir H. Masoumi, and Ladimer S. Nagurney, was on display at the Springer booth at this conference.



(l-r) Drs. Min Yu, Amir H. Masoumi, and Anna Nagurney with their new book

On October 9, 2013 both Professor Nagurney and Dong "Michelle" Li were invited speakers at a Manufacturing Technology Networking event hosted and organized by [Raytheon](#)

Michelle's presentation was on "A Dynamic Network Oligopoly Model with Transportation Costs, Product Differentiation, and Quality Competition." Her talk was based on the [paper, which is now in press in the journal Computational Economics](#)

[For the latest information on our Center activities, please visit our website.](#)

Professor Anna Nagurney Speaks at Texas A&M



Professor Anna Nagurney at Texas A&M University in College Station

Professor Anna Nagurney spoke at Texas A&M University in College Station on October 25, 2013. Her presentation was on "Networks Against Time: From Food to Pharma." She was hosted by Professor Sergiy Butenko and the Texas A&M INFORMS Student Chapter and her visit was sponsored, in part, by [the great INFORMS Speakers Program](#) and by Dow Chemical.

She thanks her hosts for their great hospitality!

Hosting Dr. Les Servi of Mitre

On November 1, 2013, at the Isenberg School of Management, we had the distinct pleasure of hosting [Dr. Les Servi of MITRE](#), who is an INFORMS Fellow. Dr. Servi delivered a brilliant talk on his latest research on the topic: *Analyzing Social Media Data Having Discontinuous Underlying Dynamics.*



Dr. Servi with several members of the audience after his talk

Dr. Servi's presentation was part of the UMass Amherst INFORMS Speakers Series, which the

[Student Chapter](#) helps the Center Director to organize and to host.

As part of his visit we also took the opportunity to celebrate the UMass Amherst INFORMS Student Chapter's receipt of the Magna Cum Laude Award for its activities in 2012 at the INFORMS Minneapolis meeting and our other awards.



The three awards received at the INFORMS Minneapolis meeting (Magna Cum Laude Chapter Award, Professor Anna Nagurney's INFORMS Fellow Award, and Professor Amir H. Masoumi's Judith B. Liebman Award)

Kudos and News

This has been a wonderful season for our research publications with both Doctoral Student Center Associates and Center Associates having several papers accepted for publication as well as published in such journals as the *Annals of Operations Research*, the *International Transactions in Operational Research*, *Netnomics*, *Computational Management Science*, and the *European Journal of Operational Research*, among others. We include some highlights of these in our Recent Center Publications below. What is especially gratifying is the great collaborations among the Center Associates. For example, **A Variational Inequality Formulation of Equilibrium Models for End-of-Life Products with Nonlinear Constraints**, by Professor Fuminori Toyasaki and by Center Associates Professors Patrizia Daniele and Tina Wakolbinger is now in press in the *European Journal of Operational Research*.

Professor Anna Nagurney completed her year sabbatical, which she very much enjoyed and during which she had an appointment as a Visiting Professor at the School of Business, Economics and Law at the University of Gothenburg in Sweden. She spent several months there. Her host there was Professor Jonas Floden. In June they were both interviewed by a journalist from San Francisco,

Ms. Mary Catherine O'Connor, who wrote an article, *Congestion pricing: Does it make cities more car-free?*, for **SmartPlanet**, which appeared July 4th, 2013.

[You can read the article here.](#)

Professor Anna Nagurney also held a Guest Professorship during part of March 2013 at the Vienna University of Economics and Business and one of her hosts was Center Associate Professor Tina Wakolbinger who has been very busy there serving as the Director of the Research Institute for Supply Chain Management there.

Dr. Tina Wakolbinger received a grant from the [Austrian Science Fund for the project: Optimal Pricing Policies and Contracts of Outsourcing Humanitarian Logistics Activities](#).

Congratulations to Dr. Trisha Anderson. Dr. Trisha Anderson of the School of Business at Texas Wesleyan University was selected as the 2013 General Board of Higher Education and Ministry of the United Methodist Church (GBHEM) exemplary teacher for 2013. Dr. Anderson will receive a monetary award and the honor to speak at the Fall commencement ceremony.

Center Associate [Professor June Dong](#) of the School of Business at SUNY Oswego is a Co-PI on the project: [Developing an Interactive Web-Application for Instructions Involving Networks funded by an Innovative Instruction Technology Grant \(IITG\) from the State University of New York \(SUNY\)](#).

Center Associate [Professor Ding Zhang](#) of the School of Business at SUNY Oswego has been busy hosting two Visiting Scholars from China with whom he is working on emergency management and service management with a network focus. In addition, he was a Visiting Professor on a short term research appointment at the Nanjing University of Science and Technology in China.

Professor Amir H. Masoumi, who received his PhD from UMass Amherst with a concentration in Management Science from the Isenberg School of Management in May 2013, assumed his new position as an Assistant Professor at the School of Business at Manhattan College in NYC in Fall 2013.

Doctoral Student Center Associate Shivani Shukla was elected President of the UMass Amherst INFORMS Student Chapter and has been very active organizing activities. Doctoral Student Center Associate Sara Saberi was elected Treasurer and Dong "Michelle" Li is serving as the chapter's Webmaster this year.



UMass Amherst INFORMS Student Chapter election photo Fall 2013

Recent Center Publications

Please see our center articles at:

<http://supernet.isenberg.umass.edu/dart.html>

Supply Chain Network Sustainability Under Competition and Frequencies of Activities from Production to Distribution,

A. Nagurney, M. Yu, and J. Floden, *Computational Management Science* (2013), **10(4)**, 397-422.

Supply Chain Networks with Global Outsourcing and Quick-Response Production Under Demand and Cost

Uncertainty, Z. Liu and A. Nagurney, *Annals of Operations Research* (2013), **208(1)**, 251-289.

A Dynamic Network Oligopoly Model with Transportation Costs, Product Differentiation, and Quality Competition,

A. Nagurney and D. Li, *Computational Economics* (2013), in press.

Pharmaceutical Supply Chain Networks with Outsourcing Under Price and Quality Competition,

A. Nagurney, D. Li, and L.S. Nagurney, *International Transactions in Operational Research* (2013), **20(6)**, 859-888.

Design of Sustainable Supply Chains for Sustainable Cities,

A. Nagurney, *Environment & Planning B* (2013), in press.

A Network Economic Game Theory Model of a Service-Oriented Internet with Choices and Quality Competition,

A. Nagurney, D. Li, T. Wolf, and S. Saberi, *Netnomics* (2013), **14(1-2)**, 1-25.

Supply Chains and Transportation

Networks, A. Nagurney, *Handbook of Regional Science* (2014), M. Fischer and P. Nijkamp, Editors, Springer, Berlin, Germany, pp 787-810.

ChoiceNet: Network Innovation Through Choice, G. N. Rouskas, I. Baldine, K. Calvert, R. Dutta, J. Griffioen, A. Nagurney, and T. Wolf, invited paper for the 17th Conference on Optical Network Design and Modeling (ONDM 2013), Brest, France.

Financial Networks, A. Nagurney, *Computational Management Science* (2013), **10(2-3)**, 77-80.

Competitive Food Supply Chain Networks with Application to Fresh Produce, M. Yu and A. Nagurney, *European Journal of Operational Research* (2013), **224(2)**, 273-282.

Medical Nuclear Supply Chain Design: A Tractable Network Model and Computational Approach, A. Nagurney and L. S. Nagurney, *International Journal of Production Economics* (2012), **140(2)**, 865-874.

The Closed-loop Supply Chain Network with Competition, Distribution Channel Investment, and Uncertainties, Q. Qiang, K. Ke, T. Anderson, and J. Dong, *Omega* (2012), **41(2)**, 186-194.

Choice as a Principle in Network Architecture, T. Wolf, J. Griffioen, K. Calvert, R. Dutta, G. Rouskas, I. Baldine, and A. Nagurney, in the *Proceedings of ACM SIGCOMM 2012*, Helsinki, Finland, August 13-17, 2012.

Multiperiod Competitive Supply Chain Networks with Inventorying and a Transportation Network Equilibrium Reformulation, Z. Liu and A. Nagurney, *Optimization and Engineering* (2012), **13(2)**, 471-503.

A Bi-Criteria Measure to Assess Supply Chain Network Performance for Critical Needs Under Capacity and Demand Disruptions, Q. Qiang and A. Nagurney, *Transportation Research A* (2012), Special issue on Network Vulnerability in Large-Scale Transport Networks, **46(5)**, 801-812.

A Supply Chain Generalized Network Oligopoly Model for Pharmaceuticals Under Brand Differentiation and Perishability, A. H. Masoumi, M. Yu, and A. Nagurney, *Transportation Research E* (2012), **48**, 762-780.

An Integrated Disaster Relief Supply Chain Network Model with Time Targets and Demand Uncertainty, A. Nagurney, A.H. Masoumi, and M. Yu (2013). invited paper for Walter Isard memorial volume, Springer, expected publication date (2014).

A Supply Chain Network Game Theoretic Framework for Time-Based Competition

with Transportation Costs and Product Differentiation, A. Nagurney and M. Yu, to appear in *Optimization in Science and Engineering - In Honor of the 60th Birthday of Panos M. Pardalos*, edited by S. Butenko, C. A. Floudas, and Th. M. Rassias, Springer, New York, (2014).

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

Center Director
The Center Director

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John F. Smith Memorial Professor

Center Associates

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Doctoral Students

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