

# The Supernetwork Sentinel

## Fall 2024

Welcome to the Fall 2024 edition of **The Supernetwork Sentinel**, the newsletter of the Virtual Center for Supernetworks at the Isenberg School of Management, UMass Amherst. We are now publishing this newsletter in Fall and Spring editions. The newsletter's purpose is to keep you informed of events, activities, and successes of the Virtual Center for Supernetworks and the Center Associates. In this newsletter, we share with our readers and supporters the achievements of the Center Director and Center Associates as well as Center activities. As always, we include Kudos and News and a list of our recent Center publications.



**The Center Director and Chapter Faculty Advisor Anna Nagurney with the UMass Amherst INFORMS Student Chapter Officers and Members after Receipt of the Magna Cum Laude Award from INFORMS in Seattle**

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**The Center Director Speaks at the Smith School at the University of Maryland on November 1, 2024.**

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## International Conferences

The past several months have been incredibly busy but also quite productive.

The international conferencing over the summer was very engaging and rewarding, beginning with the conference in Halkidiki, Greece, in honor of the 70<sup>th</sup> birthday of Professor Panos M. Pardalos!



In attendance were colleagues from many different countries. Center Associate Professor Dmytro Matsypura traveled from the University of Sydney in Australia to present and the Center Director presented a paper joint with Center Associate Professor Ladimer S. Nagurney of the University of Hartford and Doctoral Student Center Associate Ismael Pour. It was extra special since there were even presenters from Ukraine. While there, the Center Director, Professor Anna Nagurney, received an email that she was selected to be the 2024 Blackett Lecturer by The OR Society!

Professors Ladimer S. Nagurney and Anna Nagurney spent 3 weeks in Europe, meeting with colleagues in different countries, including Center Associate Professor Tina Wakolbinger of the Vienna University of Economics and Business and visiting the University of Gothenburg. The travels culminated in the EURO Conference in Copenhagen, Denmark.



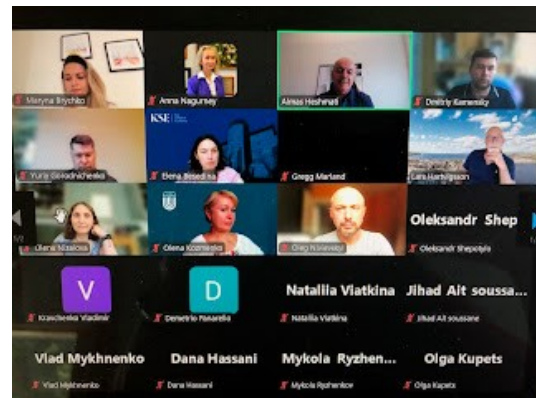
At EURO, it was great to see Center Associates Professors Tina Wakolbinger and Sara Saberi of WPI, as well as Center Associate Professor Deniz Besik of the University of Richmond.



Just prior to the EURO conference, the Center Director was delighted to be invited by Professor Paula Carroll of University College Dublin to speak on a networking panel, along with Margaret Collins.

Upon the return to Amherst, the Center Director was honored to be an invited speaker at the VINEPA Conference organized by Center Associates Professors Gabriella Colajanni and Patrizia Daniele of the University of Catania: <https://web.dmi.unict.it/notizie/international-workshop-variational-inequalities-nash-equilibrium-problems-and-applications>

And, in late August, the Center Director had the pleasure of speaking at the [first International Virtual Conference on Ukraine](#), organized by colleagues in Sweden. She presented a paper co-authored with Doctoral Student Center Associate Dana Hassani (as lead author) and Kyiv School of Economics colleagues Professor Oleg Nivievskiy and Dr. Pavlo Martyshev. The paper is scheduled to be published in the January-February 2025 issue of the journal *Transportation Science*.



Some of the conferees at the Virtual Conference

## SCRIPS Workshop in DC

The Center Director would like to thank Professor Ron Askin, the Director of CAOE at the Arizona State University, for the honor of

presenting the keynote address at the SCRIPS (Supply Chain Resilience Issues, Problems and Solutions for the Homeland Security Enterprise) Workshop, which took place in Washington DC, October 1 and 2, 2024. The workshop was extraordinary, bringing together experts from government, academia and industry. The venue was excellent - the Texas A&M Bush Center, very close to The White House.

The title of the keynote was: **Supply Chain Resilience Research: Insights from Agricultural & Food Supply Chains.**

There were 3 themes to this workshop: the agricultural and food industry, the semiconductor industry, and ports. The organizers were incredibly prescient with the workshop taking place October 1 and 2, 2024, and the East Coast and Gulf Coast dock workers set to go on strike at midnight on October 1!



**Photos from the SCRIPS Workshop in DC**

Professor Anna Nagurney published two articles in *The Conversation* on the dockworkers' strike and impacts. [These and other OpEds can be found here.](#)

## INFORMS Seattle Conference

The INFORMS Annual Meeting in 2024 took place in Seattle Washington, October 20-23. It convened over 6,000 delegates from across the globe and was an extraordinary conference in terms of presentations, business meetings, and networking opportunities. It was wonderful to have Center Associates Professor Ke "Grace" Ke of Central Washington University and Professor Pritha Dutta of Willamette University join us for coffee and tea the first day of the conference. In addition, it was the first INFORMS conference for Doctoral Student Center Associates Ismael Pour and Samira Samadi. Center Associate Professor Sara Saberi, as the new President of WORMS, presided over the WORMS awards luncheon.

Professor Anna Nagurney had the honor of speaking on the panel, **What Does Our Past Tell Us About Our Future**, with fellow panelists Professor Tom Magnanti of MIT and Professor Linus Schrage of the University of Chicago with Professor Chris Ryan of the University of British Columbia moderating.

Some of the [Center Associate presentations can be viewed here.](#)

Center Associate Professor Dmytro Matsypura traveled from the University of Sydney in Australia and the Center Director and he took part in the Springer Editorial Board meetings of the journals: *Journal of Global Optimization* and *Optimization Letters*.



**Photos from the INFORMS Seattle Conference**

## Blackett Lecture at The Royal Society in London

On December 5, 2024, the Center Director had the incredible honor of delivering the Blackett Lecture at The Royal Society in London, England. She was invited to speak by The Operational Research (OR) Society. This lecture is very prestigious. The title of her Blackett Lecture was: **NetWORKs and Policies: OR to the Rescue.**



**Photos from the Blackett Lecture event**

The audience consisted of amazing colleagues, academics and practitioners, as well as friends and invited guests. The Center Director would like to acknowledge the President of The OR Society Gilbert Owusu for the warm introduction and for so expertly handling the Q&A, and Gavin Blackett, Carol McLaughlin, Sarah Davies, and Caitlin Griffin of The OR Society for the hospitality. Special thanks to Graham Rand, Edmund Burke, and Robert Fildes for the conversations and welcome. It's not every day that one gets to be in a photograph next to an oil painting of the Nobel laureate and Founder of OR in the UK - Patrick Blackett!

It was an honor to have the Isenberg School of Management, UMass Amherst Dean Anne P. Massey and Senior Associate Dean William Brown in attendance as well as Diane Isenberg and University of Massachusetts Amherst PhD alumnus and Center Associate Dr. Stavros Siokos, co-founder of Astarte Capital. Recognizing so many in the audience because of professional interactions over the years, made for a very enjoyable experience - thank you all! The slide deck of her presentation has been posted: <https://supernet.isenberg.umass.edu/visuals/BlackettLecture-Nagurney-2024.pdf>

The video recording as well as additional photos will be posted by The OR Society, respectively, on its youtube channel and Flickr page.

And the evening before the Blackett Lecture, Dr. Siokos hosted a lovely event for the Isenberg group, which included the above Deans, alums, and friends, at the Michelin House.

## Kudos and News

Congratulations to Center Associate Professor Zugang "Leo" Liu for becoming Associate Chief Academic Officer, Director of Management Programs, and Professor of Business Administration, Management Division of Penn State Great Valley!

Congrats to Center Associate Professor Shivani Shukla on becoming Associate Dean for Undergraduate Programs at the University of San Francisco!

Congratulations to Center Associate Professor Sara Saberi for being elected President of WORMS (Women in Operations Research and the Management Sciences) of INFORMS.

Congratulations to Center Associates Professors Gabriela Colajanni and Patrizia Daniele of the University of Catania on the success of [the 2024 VINEPA Conference](#). A special issue of the journal *Dynamics and Games*, based on the

conference, is being prepared. Congratulations also to Professor Colajanni on the [publication of her co-authored paper in the \*INFORMS Transactions on Education\*](#). Congrats also to Center Associate Professor Dong "Michelle" Li of Babson College on [the publication of her co-authored paper in the same journal](#).

Congratulations to the UMass Amherst INFORMS Student Chapter on its receipt of the Magna Cum Laude Award from INFORMS at the Annual Meeting in Seattle in October. Doctoral Student Center Associate Dana Hassani was last year's Chapter President and this year's Chapter President is Doctoral Student Center Associate Ismael Pour.

Kudos also to Dana for passing his comprehensive exam and becoming officially a PhD Candidate and for acceptance of his lead author paper, **A Multiperiod, Multicommodity, Capacitated International Agricultural Trade Network Equilibrium Model with Applications to Ukraine in Wartime**, D. Hassani, A. Nagurney, O. Nivievskiy, and P. Martyshchev, in *Transportation Science*, Articles in Advance (2024). Congratulations as well to Ismael and to Doctoral Student Center Associate Samira Samadi on the publication of their first journal article, as PhD students in the Isenberg School: **A Variational Inequality Trade Network Model in Prices and Quantities Under Commodity Losses**, A. Nagurney, I. Pour, S. Samadi, *Journal of Nonlinear and Variational Analysis* (2024), **8(6)**, 935-952.

Thanks to the Isenberg School for publishing this essay by the Director:

<https://www.isenberg.umass.edu/news/anna-nagurney-oim-isenberg-make-impact>

Professor Anna Nagurney was an invited speaker at the FutureBAProf Workshop at the Tippie School of Business at the University of Iowa, August 11-13, 2024. She thanks Professor Melissa Ann Campbell for the invitation and for the expert organization of this workshop. Congrats to Doctoral Student Center Associate Dana Hassani for being selected to take part in this workshop. There was a lot of competition!



**Group photo of the FutureBAProf Workshop Participants**

Congrats also to Dana for presenting at the INFORMS Security Conference in Arlington, VA this past summer.



### Dana Hassani at the INFORMS Security Conference

The Center Director's work as the Co-Chair of the Board of Directors of the Kyiv School of Economics (KSE) continues. She is also actively involved in the UMass Amherst – KSE partnership and is working with 3 Virtual Scholars in Ukraine, who are in the second cohort; see: <https://www.umass.edu/global-affairs/news/kyiv-school-economics-and-university-massachusetts-amherst-launch-second-round-virtual-scholar>

In addition, the Center Director is active in supporting the exchange students from KSE. There are 5 this Fall term studying at UMass Amherst.

Many thanks to Ryan Van Slyke of State Street for meeting with the KSE exchange students and Professor Bogdan Prokopovych in the Center Director's office recently and for sharing many pearls of wisdom with us.



### Ryan Van Slyke Visits the Isenberg School

Professor Anna Nagurney was honored to be appointed to a five year term as a Supply Chain Expert to advise the Chief Scientist of the Department of Homeland Security <https://www.umass.edu/news/article/anna->

[nagurney-appointed-five-year-term-supply-chain-expert-dhs-chief-scientist-office](https://www.umass.edu/news/article/anna-nagurney-appointed-five-year-term-supply-chain-expert-dhs-chief-scientist-office)

## Recent Center Publications

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

*Dynamics of Disasters: From Natural Phenomena to Human Activity*, I.S. Kotsireas, A. Nagurney, P.M. Pardalos, S. Pickl, C. Vogiatzis, Editors, (2025), Springer Nature Switzerland AG, in press; see: <https://link.springer.com/book/9783031740053>

**Preface to:** *Dynamics of Disasters: From Natural Phenomena to Human Activity*, I.S. Kotsireas, A. Nagurney, P.M. Pardalos, S. Pickl, C. Vogiatzis, Editors, (2025), Springer Nature Switzerland AG, in press.

**A Multiperiod, Multicommodity, Capacitated International Agricultural Trade Network Equilibrium Model with Applications to Ukraine in Wartime**, D. Hassani, A. Nagurney, O. Nivievskiy, and P. Martyshev, *Transportation Science*, Articles in Advance (2024).

**A Variational Inequality Trade Network Model in Prices and Quantities Under Commodity Losses**, A. Nagurney, I. Pour, S. Samadi, *Journal of Nonlinear and Variational Analysis* (2024), **8(6)**, 935-952.

**Civilian-Military Integration in Ukrainian Defense Supply Chain**, M. Kushnir, A. Nagurney, and R. Konrad, *Proceedings of the 21st ISCRAM Conference – Münster, Germany May 2024*, Berthold Penkert, Bernd Hellingrath, Monika Rode, Adam Widera, Michael Middelhoff, Kees Boersma, Matthias Kalthöner, Editors.

**Commentary on Carroll & Esposito Amideo "Gender Equality: Opportunities and Challenges for the OR Community,"** A. Nagurney, *Journal of the Operational Research Society* (2024), **75(6)**, 1035-1038.

**Schäden und Wiederaufbau der ukrainischen Infrastruktur (Damage and Reconstruction of Ukrainian Infrastructure)** O. Nivievskiy, D. Goriunov, and A. Nagurney, *UKRAINE-ANALYSEN AUSGABE 296* (15.03.2024) — DOI: 10.31205/UA.296.03. For the English translation, see: [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=4831914](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4831914)

**Multicommodity International Agricultural Trade Network Equilibrium**, A. Nagurney (2024), in press in *Encyclopedia of Operations Management*, T.M. Choi, Editor, Elsevier.

**Quantification of International Trade Network Performance Under Disruptions to**

**Supply, Transportation, and Demand Capacity, and Exchange Rates in Disasters,**

A. Nagurney, D. Hassani, O. Nivievskiy, and P. Martyshev (2025), in *Dynamics of Disasters-From Natural Phenomena to Human Activity*, I.S. Kotsireas, A. Nagurney, P.M. Pardalos, S. Pickl, C. Vogiatzis, Editors, Springer Nature Switzerland AG, in press.

**Ukraine – Addressing the Domestic Humanitarian Crisis and the Effects of the War on Global Food Systems,**

O. Nivievskiy and A. Nagurney, in: *Food and Humanitarian Crises: Science and Policies for Prevention and Mitigation Proceedings of the Working Group 9-10 May 2023*, Joachim von Braun, Bettina Iseli, Maximo Torero, Peter Turkson (Editors) Scripta Varia 154, LEV, Vatican City, 2024.

**Multicommodity International Agricultural Trade Network Equilibrium: Competition for Limited Production and Transportation Capacity Under Disaster Scenarios with Implications for Food Security,**

A. Nagurney, D. Hassani, O. Nivievskiy, and P. Martyshev, *European Journal of Operational Research* (2024), **314(1)**, 1127-1142.

**Food Security and Multicommodity Agricultural International Trade: Quantifying Optimal Consumer Subsidies for Nutritional Needs,**

A. Nagurney, *International Transactions in Operational Research* (2024), **31(3)**, 1375-1396.

**Exchange Rates and Multicommodity International Trade: Insights from Spatial Price Equilibrium Modeling with Policy Instruments via Variational Inequalities,**

A. Nagurney, D. Hassani, O. Nivievskiy, and P. Martyshev, *Journal of Global Optimization* (2023), **87**, 1-30.

**A Three-Stage Stochastic Optimization Model integrating 5G Technology and UAVs for Disaster Management,**

G. Colajanni, P. Daniele, A. Nagurney, L.S. Nagurney, and D. Sciacca, *Journal of Global Optimization* (2023), **86**, 741-780.

**International Migrant Flows: Coalition Formation Among Countries and Social Welfare,**

M. Passacantando, F. Raciti, and A. Nagurney, *EURO Journal on Computational Optimization* (2023), **11**, 100062.

**An Integrated Multitiered Supply Chain Network Model of Competing Agricultural Firms and Processing Firms: The Case of Fresh Produce and Quality,**

D. Besik, A. Nagurney, and P. Dutta, *European Journal of Operational Research* (2023), **307(1)**, 364-381.

**Defense Critical Supply Chain Networks and Risk Management with the Inclusion of**

**Labor: Dynamics and Quantification of Performance and the Ranking of Nodes and Links,**

A. Nagurney (2023), in: *Handbook for Management of Threats, Security and Defense, Resilience and Optimal Strategies*, K. Balomenos, A. Fytopoulos, and P.M. Pardalos, Editors, Springer Nature Switzerland AG 2023, pp. 39-57.

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