

## **2017 Frontiers in Resilience Symposium:**

***Developing Innovative Resilience Solutions at  
the Interface of Science, Economics, and Policy***

**May 10 – 11, 2017  
George Mason University  
Arlington Campus**

## ***Symposium Agenda***

### **Wednesday, May 10**

<b>8:00 - 8:45am</b>	<b>Event Registration and Check-in (Founders' Hall)</b>
<b>8:45 – 9:00</b>	<b>Welcome Remarks and Introductions (Auditorium)</b>  <b>Eric Vugrin, Ph.D.</b> Sandia National Laboratories  <b>Mark Troutman, Ph.D.</b> Center for Infrastructure Protection and Homeland Security
<b>9:00 - 9:20</b>	<b>Symposium Opening Remarks (Auditorium)</b>  <b>Dr. Deborah Crawford</b> Vice President of Research George Mason University
<b>9:20 – 10:20</b>	<b>Opening Keynote Address (Auditorium)</b>  <b>Susan Monarez, Ph.D.</b> Deputy Assistant Security for Policy, Plans, Strategy Department of Homeland Security  <b>Brian J. Moran</b> Secretary of Public Safety and Homeland Security Commonwealth of Virginia
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<b>10:20 – 10:30</b>	<b>BREAK (Founders' Hall Art Gallery)</b>
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10:30 – 11:45

**Subject Matter Experts Panel (Auditorium)**

***Resilience Challenges in the Decades to Come: What Keeps You Up at Night?***

**Moderator:**

**Mark Troutman, Ph.D.**

Center for Infrastructure Protection and Homeland Security

**Stephen Flynn, Ph.D.**

Northeastern University

**Susan Ginsburg**

U.S. Civil Security, LLC

**Vanessa Vargas**

Sandia National Laboratories

**Alex Washburn**

Stevens Institute of Technology

**Evan Wolff**

Crowell & Moring, LLP

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11:45 – 1:00pm

**Lunch (Multipurpose Rooms)**

**David Martin, Ph.D.**

Executive Director

Centre of Applied Innovation, Melbourne Polytechnic Institute

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1:00 – 2:15

**Subject Matter Expert Panel (Auditorium)**

***Community Resilience: Buildings, Districts, and Cities***

**Moderator:**

**Mahmoud Taha, Ph.D.**

University of New Mexico

**Charles Allen**

City of New Orleans, LA

**Robert Jeffers, Ph.D.**

Sandia National Laboratories

**Alexander Zhivov, Ph.D.**

U.S. Army Corps of Engineers

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**2:15 – 2:30**

**BREAK (Founders' Hall Art Gallery)**

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**2:30 – 3:45**

**Cross-Cutting Sessions**

**Track A: Cyber Resilience**

Founders' Hall Room 118

***Panel on Cyber Resilience***

**Moderator:**

**Walter Dula**

Accenture Federal Services

**Stacy Gardner**

Capitol One

**Randy Sylvertooth**

National Cybersecurity and Communication Integration Center

**Jermund Hagan**

FreddieMac

**Track D: Innovative Approaches**

Founders' Hall Room 121

Discussant:

1. Rodric Bowman, D.Sc. – NYC Health + Hospitals  
*The Garden State Approach: A Model to Improve Preparedness and Strategically Enhance Resiliency at the Community Level*
2. Kathryn Godfrey and Denton Herring – Government Accountability Office  
*Evaluating and Encouraging Integrated Disaster Resilience Action*
3. Rae Zimmerman, Ph.D. – New York University  
*Infrastructure Frameworks for Urban Resilience*

**Track C: Critical Infrastructure**

Founders Hall Room 318

Discussant:

1. Mahmoud Reda Taha, Ph.D. – University of New Mexico  
*Redundancy: A Gateway for Resilience-Based Design of Civil Infrastructure*
2. Ignacio Martinez-Moyano, Ph.D. – Argonne National Laboratories  
*Bounded Resiliency*
3. Sarah Gambill, Sandra Pinel, Wynne Kwan, Larry Henschel, and Kerry O'Connor – U.S. Department of Homeland Security  
*Bridging Sectors and Jurisdictions: A Holistic Approach to Developing Physical and Cyber Infrastructure Security and Resilience*

**3:45 – 5:00****Crossing Cutting Sessions****Track E: Lifeline Sector Resilience**

Founders Hall Room 118

Discussant:

1. Jennifer F. Sklarew, Ph.D., Colin Reagle, Ph.D., Viviana Maggioni, Ph.D., Paul Houser, Ph.D., Dann Sklarew, Ph.D., and Celso Ferreira, Ph.D. – George Mason University  
*Empowering Resilience in Energy and Water Systems: Addressing Barriers to Implementation of Urban Hydroelectric Microturbines*
2. Elizabeth J. Kistin Keller, Ph.D. – Sandia National Laboratories  
*Water Governance and Resilience in the Orange – Senqu River Basin*

**Track B: Urban and Community Resilience**

Founders Hall Room 121

Discussant:

1. Lori R. Hodges and Wayne Porter, Ph.D. – Larimer County, CO  
*Community Fragility: Putting Research into Action*
2. Shari P. Willis, Ph.D., Christian A. Howieson, and Destiny D. Aman –  
HWC  
*Recommended methods for using behavioral science-based risk  
communications to increase CRS participation*

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**5:00 – 7:00**

**Networking Reception (Multipurpose Rooms)**

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## Thursday, May 11

8:00 - 8:45am Event Registration and Check-in (Founders' Hall)

8:45 - 9:00 Welcome Back Remarks (Auditorium)

9:00 – 10:15 Subject Matter Experts Panel (Auditorium)  
*Putting Resilience in Practice: Enhancing Resilience of the Power Grid*

**Moderator:**  
**Charles Hanley**  
Sandia National Laboratories

**Robert Bradish**  
American Electric Power (AEP)

**Robert Manning**  
Electric Power Research Institute (EPRI)

Additional speakers to be added

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10:15 – 10:30 **BREAK (Founders' Hall Art Gallery)**

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10:30 – 11:45 Crossing Cutting Sessions

**Track B: Urban and Community Resilience**  
Founders Hall Room 111

*Challenges Affecting Climate Change Resiliency in the greater  
Washington, DC area*

**Moderator:**  
**Dale Medearis, Ph.D.**  
Northern Virginia Regional Commission

**Cory Miles**  
Northern Virginia Regional Commission



**Amanda Campbell**

Northern Virginia Regional Commission

**Harrison Newton**

100 Resilient Cities

**Track A: Cyber Resilience**

Founders Hall Room 118

**Discussant:**

1. Aaron Clark-Ginsberg, Ph.D. – Stanford University  
*What is Cyber-Resilience?*
2. Sachin Shetty, Ph.D. – Old Dominion University  
Linfeng Zhang, Jay P. Kesan, and David Nicol, Ph.D. – University of Illinois at Urbana-Champaign  
*Improving Assessment of Technological and Portfolio Risks*

**Track B: Urban and Community Resilience**

Founders Hall Room 120

**Discussant:**

1. Meghan Housewright – National Fire Protection Association  
*International Standards Activities for Smart and Sustainable Cities*
2. Marty D. Matlock, Ph.D. and Stephen D. Luoni – University of Arkansas  
*A Design Language for Urban Resilience*
3. George W. McAleese and Lori W. Gordon  
*Recommendations for Use of Federal Resilience Tools and Resources in Smart Cities to Mitigate Infrastructure risks and Vulnerabilities*

**Track C: Critical Infrastructure**

Founders Hall Room 121

**Discussant:**

1. David L. Alderson, Ph.D. – Naval Postgraduate School  
*Overcoming Barriers to Greater Scientific Understanding of Critical Infrastructure Resilience*
2. Susan Spierre Clark, Ph.D. and Thomas P. Seager, Ph.D.  
*A Capabilities Approach towards Prioritization of Critical Infrastructure Resilience*



### Track E: Lifeline Sector Resilience

Founders Hall Room 210

#### Discussant:

1. Julia Philips, Ph.D. – Argonne National Laboratories  
*National Electricity Emergency Response Capabilities*
2. Elizabeth Graffy, Ph.D. – Arizona State University  
*Safeguarding the Resilience of Power and Transportation Infrastructures during Transitions to Sustainability*
3. Alfred Hubler, Ph.D. – University of Illinois at Urbana-Champaign  
*Digital Wire Power Grids: Resilient and Efficient*

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11:45 – 1:00pm

### Lunch (Multipurpose Rooms)

Pete Tseronis

Founder and CEO

Dots and Bridges

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1:00 – 2:15

### Crossing Cutting Sessions

#### Track C: Critical Infrastructure

Founders Hall Room 111

#### Future Trends and Hazards in Critical Infrastructure

#### Moderator:

Mark Troutman, Ph.D.

Center for Infrastructure Protection and Homeland Security

#### Track A: Cyber Resilience

Founders Hall Room 118

1. Nancy W. Gallagher, Ph.D. and Charles T. Henry, Ph.D. - Center for International and Security Studies at Maryland  
*Cyber Disruption Index (CDI) and Use to Estimate Aggregated Effects of Multiple Disruptive Attacks*
2. R.A. Williams – Sandia National Laboratories  
*Cybersecurity Applicability of Physical Resilience Design Features for Embedded Systems*

### Track D: Innovation Approaches

#### Founders Hall Room 120

1. Dayton Marchese and Igor Linkov, Ph.D. - U.S. Army Engineer Research and Development Center  
*Network Approach to Resilience Quantification*
2. Ralph T. Muehleisen, Ph.D. – Argonne National Laboratories  
*A New Framework for Identifying and Prioritizing Failure Points in Critical Urban Infrastructure*
3. Paul Theron, Ph.D. – THALES Group  
*Towards a General Theory of Corporate Resilience*

### Track D: Innovative Approaches (Education)

#### Founders Hall Room 121

1. Lauren R. McBurnett – Arizona State University  
*Simulation Games Strengthen Experiential Learning in Infrastructure Systems Education*
2. Thomas P. Seager, Ph.D. – Arizona State University  
*Redesigning Education for Resilience*

### Track E: Lifeline Sector Resilience

#### Founders Hall Room 210

1. Fadi Karaa, Ph.D. – New Jersey Institute of Technology  
*Optimizing Mass transit Transportation Resilience: Model, Implementation and Policy Implications*
2. Andrea Stone – Dynamic Pro, Inc.  
*Risk Communication and its Vital Role in Building Resilience in Transportation Systems*

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2:15 – 2:30

**BREAK (Founders' Hall Art Gallery)**

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2:30 – 3:45

**Subject Matter Expert Panel (Auditorium)**

***Shaping the Future: Solutions to the Most Pressing Resilience Issues***

**Moderator:**

**Pete Tseronis**

Dots and Bridges

**David Alderson, Ph.D.**

Naval Postgraduate School

**Tonya Coultas**

Georgetown University

**Matthew Fuchs**

Pew Charitable Trusts

**Adam Rose, Ph.D.**

University of Southern California

**Additional speaker to be added**

**3:45 – 4:15**

**Symposium Closing Remarks (Auditorium)**

**Eric Vugrin, Ph.D.**

Sandia National Laboratories

**Mark Troutman, Ph.D.**

Center for Infrastructure Protection and Homeland Security