# 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*
## <u>Wednesday, May 10</u>

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

**8:45 – 9:00**      **Welcome Remarks and Introductions (Auditorium)**

**Eric Vugrin, Ph.D.**
Sandia National Laboratories

**Mark Troutman, Ph.D.**
Center for Infrastructure Protection and Homeland Security

**9:00 - 9:20**      **Symposium Opening Remarks (Auditorium)**

**Dr. Deborah Crawford**
Vice President of Research
George Mason University

<mark>Additional speaker to be added</mark>

**9:20 – 10:20**      **Opening Keynote Address (Auditorium)**

**Susan Monarez, Ph.D.**
Deputy Assistant Secretary for Policy, Plans, Strategy
Department of Homeland Security

**Brian J. Moran**
Secretary of Public Safety and Homeland Security
Commonwealth of Virginia

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**10:20 – 10:30**      **BREAK (Founders' Hall Art Gallery)**

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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

**11:45 – 1:00pm**    **Lunch (Multipurpose Rooms)**

**David Martin, Ph.D.**
Executive Director
Centre of Applied Innovation, Melbourne Polytechnic Institute

**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

**Karina Korostelina, Ph.D.**
George Mason University

**Benjamin Thomas, Ph.D.**
Oak Ridge 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

**Jermand 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 Hencshel, 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

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| 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

**Alfred R. Berkeley**
Princeton Capital Management

**Tonya Coultas**
Georgetown University

**Matthew Fuchs**
Pew Charitable Trusts

**Mark J. Gerencser**
UMUC Ventures

**Adam Rose, Ph.D.**
University of Southern California

**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