MONDAY, NOVEMBER 4

1:30 – 5:00  **Infrastructure Special Session: Electromagnetic Pulse**  
**Cochairs:** Jesse Reeves, (INL), Patti Geppert, (UTSA)  
**Location:** VILLA  
1:30 – 1:40 Welcome and Introduction to the Session  
1:40 - 2.30 Technical overview of EMP and Threat: Dr. Jesse Reeves (INL)  
2:30 – 3:00 Technical overview of 5G and importance in EMP resiliency: Dr. Brian Kelley (UTSA)  
3:00 – 3:30 SA-EMP Overview of the San Antonio community effort: Lt. Col. Eddie Stamper (JBSA)  
3:30 – 3:40 Break  
3:40 – 4:50 Panel Discussion: Dr. Jesse Reeves (INL), Col. Mike Lovell (JBSA), Dr. Brian Kelley (UTSA), Mr. Fred Bonewell (CPS Energy)  
4:50 – 5:00 Closing Remarks

1:30 – 5:00  **Communications Industry Special Session: Emergency Communications**  
**Cochairs:** Brad Nelson (INL), Hailey Siple (EEI)  
**Location:** ZAPATA  
1:30 – 2:40 Panel: ESCC Resilient Emergency Communications Capabilities  
Panelists  
- Jonathon Monken (PJM)  
- Don Roberts (Southern Company)  
- Hailey Siple (EEI)  
- Jay Herman (EPRI)  
- Brad Nelson (INL)  
2:40 – 3:40 Panel: Critical Infrastructure and 6GHz Operations  
Panelists  
- David Wells (DOE)  
- Paul Titus (Idaho National Laboratory)  
- Paul Caritj (Harris, Wiltshire & Grannis)  
- David Hoover (The Ferguson Group)  
4:00 – 5:00 Presentation: Interoperability Solutions for Emergency Response and Recovery  
- Robby Hill (Mutualink)

5:00 – 7:00  **Registration and Sponsored Reception**  
**Location:** NAVARRO PREFUNCTION
**Tuesday, November 5**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>7:00 - 8:00</td>
<td><strong>Registration and Breakfast</strong>&lt;br&gt;Location: NAVARRO PREFUNCTION</td>
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<tr>
<td>8:00 - 8:20</td>
<td><strong>Resilience Week Welcome: JoAnn Browning, Dean, UTSA College of Engineering</strong>&lt;br&gt;Location: NAVARRO BALLROOM</td>
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<tr>
<td>8:20 - 9:30</td>
<td><strong>Plenary Speaker</strong>&lt;br&gt;Location: NAVARRO BALLROOM&lt;br&gt;8:20 - 8:30 <strong>Introduction:</strong> JoAnn Browning, Dean, UTSA College of Engineering&lt;br&gt;8:30 - 9:30 <strong>Congressman Joaquin Castro, Texas 20th District</strong></td>
</tr>
<tr>
<td>9:30 - 10:30</td>
<td><strong>Track 1:</strong> DOE Special Session Panel: Advanced Sensors and Data Analytics for Enhanced Electric Grid Resilience&lt;br&gt;Chair: Eric Lightner (DOE-OE), Yarom Polsky (ORNL)&lt;br&gt;Location: VILLA&lt;br&gt;Panelists&lt;br&gt;- Emma Stewart (LLNL)&lt;br&gt;- Shannon Strank (University of Texas Center for Electromechanics)&lt;br&gt;- Tatjana Dokic (Texas A&amp;M University)</td>
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<tr>
<td>9:30 - 10:30</td>
<td><strong>Track 2:</strong> Cyber: Workforce Development Panel: Recent Graduates&lt;br&gt;Cochairs: David Manz (PNNL) Nicole Beebe (UTSA), Nate Evans (ANL)&lt;br&gt;Location: CAMINO REAL&lt;br&gt;Panelists&lt;br&gt;- Chelsea Hicks (USAF, GG-13)&lt;br&gt;- Jessica Le (Chevron)&lt;br&gt;- Richard McCaslin (Emst &amp; Young)&lt;br&gt;- Mike Stevens (FireEye Inc.)</td>
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<td>9:30 - 10:30</td>
<td><strong>Track 3:</strong> Infrastructure: Intuitive Analytics in Complex Decision Making Environments&lt;br&gt;Chair: Jennifer Pedersen (DHS NRMC)&lt;br&gt;Location: ZAPATA&lt;br&gt;Panelists&lt;br&gt;- Functional Approaches to Cyber-Physical and Lifeline Infrastructure Interdependency Data Collection and Analysis, Shane Cherry (INL)&lt;br&gt;- Leveraging Data and Models to Visualize Critical Infrastructure Impacts and Resilience, Charles Rath (RS21)&lt;br&gt;- ANL Disrupt (Decision and Infrastructure Sciences for identifying disruptions, dependencies, and infrastructure system risk) approach for critical node analysis, Frederic Petit (ANL)</td>
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<tr>
<td>10:30 - 11:00</td>
<td><strong>Break</strong></td>
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</table>
11:00 – 12:00  **TRACK 1: DOE Special Session Panel: North American Electric Resiliency Model**  
**Chair:** David Wells (DOE-OE)  
**Location:** VILLA  
**Panelists**  
- Jean-Paul Watson (Sandia National Laboratories), Resilient Power System Operations Modeling  
- Jason Fuller (Pacific Northwest National Laboratory), NAERM: Resilience Modeling for Bulk Energy Systems  
- Prakash Thimmapuram (Argonne National Laboratory), Modeling Natural Gas Systems for Resiliency and Interdependency

**TRACK 2: Cyber: Workforce Development Panel: Career Forward Panelists**  
**Co-chairs:** David Manz (PNNL) Nicole Beebe (UTSA), Nate Evans (ANL)  
**Location:** CAMINO REAL  
**Panelists**  
- Mark Manglicmot (Ernst & Young)  
- Dave Baumgartner (FireEye)  
- Joseph Filer (Harland Clarke)

**TRACK 3: Infrastructure: Intuitive Analytics in Complex Decision Making Environments**  
**Chair:** Jennifer Pedersen (DHS NRMC)  
**Location:** ZAPATA  
- Critical infrastructure vulnerability and adaptation to extremes and long-term disruptions, and decision support, Donatella Pasqualini (LANL)  
- ‘Squirrel,’ a critical failure analysis tool for critical infrastructure, Jovana Helms (LLNL)  
- Infrastructure analysis using the cloud-based Water Event Lookup Library, David Judi (PNNL)

12:00 – 1:30  **Hosted Lunch with Plenary Speaker**  
**Location:** NAVARRO BALLROOM  
12:25 – 12:30  
**Introduction:** Zachary Tudor, National and Homeland Security Associate Laboratory Director (INL)  
12:30 – 1:30  
**Brigadier General (Ret.) Guy Walsh, Founding Executive Director, National Security Collaboration Center (The University of Texas at San Antonio)**

1:30 – 2:30  **TRACK 1: DOE Special Session Panel: Institutional Decision-Making for Resilience**  
**Chair:** Joseph Paladino (DOE-OE)  
**Location:** VILLA  
**Moderator:** Joe Paladino (Office of Electricity, US Department of Energy)  
**Panelists**  
- Jeffrey Taft (Pacific Northwest National Laboratory)  
- Leslie Nicholls (US Department of Energy)  
- Charles Hanley (Sandia National Laboratories)
**TRACK 2: Cyber Keynote: Cyber Security Education, What Works and What is Broken**
**Cochairs:** David Manz (PNNL) Nicole Beebe (UTSA), Nate Evans (ANL)
**Location:** CAMINO REAL

*Biana Burley, Executive Director and Chair of the Institute for Information Infrastructure Protection (I3P); Full Professor of Human & Organizational Learning at The George Washington University*

**TRACK 3: Infrastructure: Lightning Talks**
**Chairs:** Cherrie Black (INL), John Hummel (ANL), Fred Petit (ANL)
**Location:** ZAPATA

- Improving Post-Disaster Operational Readiness on DOD Installations through Advanced Infrastructure Planning, Paul Magoulick
- Natural Gas and Electric Generation Disruption Model for Enhanced Situational Awareness, Chloe J. Applegate, Mike Nygaard and Jovana Helms
- Connect-the-Dots with Meaning: Encoding Dependency Links to Enhance Analysis, Rob Edsall
- A Framework to Establish Critical Infrastructure Dependencies for the Energy Sector, Shiloh Elliott
- Chlorine Supply Chain for Water Treatment: Risks and Resilience, Ryan J. Cobey
- Use of GIS Capabilities and Huff Modeling to Estimate the Geographic Extent of Infrastructure Cascading Failures, Scott Schlueter, Paul Lewis, and Carmella Burdi

2:30 – 3:30 **TRACK 1: DOE Special Session Panel: Microgrids for Enhanced Resilience**
**Chair:** Dan Ton (DOE-OE)
**Location:** VILLA

**Panelists**
- Russell Bent (LANL)
- Bo Chen (ANL)
- Bobby Jeffers (SNL)
- Kevin Schneider (PNNL)

**TRACK 2: Cyber Panel: Cyber Security Workforce of the Future: Degrees, Certifications, Diversity, Maturity**
**Cochairs:** David Manz (PNNL) Nicole Beebe (UTSA), Nate Evans (ANL)
**Location:** CAMINO REAL

**Panelists**
- Biana Burley (George Washington University)
- Lt. Col. John Picklesimer (United States Air Force)
- Domini Clark (Blackmre)
- Nate Evans (Argonne National Laboratory)
**TRACK 3: Infrastructure: Student Competition: Lightning Talks**

**Chairs:** Cherrie Black (INL), John Hummel (ANL), Fred Petit (ANL)

**Location:** ZAPATA

- Federation based Cyber Physical Security Testbed: Architecture, Application, and Evaluation for Smart Grid, Vivek Kumar Singh
- Evaluating the Scalability and Generalizability of a Multiscale Approach to Model Interdependent Critical Infrastructures, Cynthia Lee
- Hooli: Towards Building Smart City San Antonio, Artem Skitenko, Harry Staley, David Velez, Joshua Davenport, and Izzat Alsmadi
- Anomaly Detection and Avoidance in Cyber Physical Systems, Sridhar Adepu and Aditya Mathur
- Resilience Traits of Incident Management Teams during Hurricane Harvey: A Quantitative Analysis from a Joint Cognitive Systems Perspective, Changwon Son, Farzan Sasangohar, S. Camille, and Jukrin Moon

**3:30 – 6:30 Reception with Multiple Parallel Activities**

**Location:** NAVARRO PREFUNCTION / BALLROOM

**Poster Presentations**

- Modeling Cyber Resilience for Energy Delivery Systems Using Critical System Functionality, Md Ariful Haque (Old Dominion University)
- The Resilience Shift Program: a safer and better world through Resilient Infrastructure, Jan Reier Huse (Lloyd’s Register Foundation)
- Development of a Host-Based Intrusion Detection and Control Device for Industrial Field Control Devices, Theora R. Rice (Pacific Northwest National Laboratory)
- Cloud Based Intrusion Detection and Prevention System for Industrial Control Systems Using Software Defined Networking, Jonathon Brugman (University of Utah)
- SECURE: An Evidence-based Approach to Cyber Experimentation, Ali Pinar (Sandia National Laboratories)
- Impact analysis of mobility on physical layer security of mmWave networks, Sarankumar Balakrishnan (University at Buffalo)
- IEEE 13 Bus Benchmark Model for Real-Time Cyber-Physical Control and Power Systems Studies, Bjorn Vaagensmith (Idaho National Laboratory)

**Gaming Competition**

- Capture the Flag

**Exhibitor Area and Job Fair**
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<thead>
<tr>
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<td>Registration and Breakfast</td>
<td>NAVARRO PREFUNCTION</td>
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<td>8:15 – 8:20</td>
<td>Student Competition Winners</td>
<td>NAVARRO BALLROOM</td>
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<td>8:20 – 9:30</td>
<td>Plenary Speaker</td>
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<td>Introduction: Hailey Siple, Manager, National Security Policy (EEI)</td>
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<td>Jonathon Monken, Senior Director (PJM Interconnection)</td>
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<td>9:30 – 10:30</td>
<td><strong>TRACK 1</strong> Keynote Speaker: Resilient Energy Infrastructure</td>
<td>NAVARRO BALLROOM</td>
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<td>Introduction: Dan Elmore, Critical Infrastructure Security &amp; Resilience Division Director (INL)</td>
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<td>Patricia Hoffman, Principal Deputy Assistant Secretary for Office of Electricity-Department of Energy</td>
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<td>10:30 – 11:00</td>
<td><strong>TRACK 2</strong> Infrastructure Panel: Adapting to New Resilience Challenges</td>
<td>ZAPATA</td>
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<td>Cochairs: Cherrie Black (INL), John Hummel (ANL), Fred Petit (ANL)</td>
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<td>Introduction and Opening Remarks: William R. McNamara (DHS CISA)</td>
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<td>▪ Scott Behunin (DHS CISA)</td>
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<td>▪ Sam Marie Hermitte (Texas Water Development Board)</td>
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<td>11:00 – 12:00</td>
<td><strong>TRACK 1</strong> Control: Cyber-Physical Resilience</td>
<td>VILLA</td>
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<td>Cochairs: Kevin Schultz (JHUAPL), Frank Ferrese (NAVSEA) and David Scheidt (WGT)</td>
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<td>Location: VILLA</td>
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<td>▪ Cyber-physical resiliency for islanded microgrids, Walter B. Richardson J r. (University of Texas San Antonio)</td>
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<td>▪ Evaluating Resilience of Grid Load Predictions Under Stealthy Adversarial Attacks, Xingyu Zhou (Vanderbilt University)</td>
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<td>▪ Protecting the Texas electric grid: A cybersecurity strategy for ERCOT and the PUCT, Les Stanaland (University of Texas at Dallas)</td>
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**TRACK 2: Cyber: Cyber Awareness and Response**

**Cochairs:** David Manz (PNRL), Nicole Beebe (UTSA)

**Location:** CAMINO REAL

- Cyber and Physical Anomaly Detection in Smart-Grids, Daniel L. Marino (Virginia Commonwealth University)
- Cluster-based Module to Manage Smart Grid Data for an Enhanced Situation Awareness: A Case Study, Arif I. Sarwat (Florida International University)

**TRACK 3: Industry Panel: Leveraging Partnerships Across the Energy Sector**

**Cochairs:** Hailey Siple (EEI), Anna Ballance (EEI), Jillian Vignoe (E-ISAC)

**Location:** SABINO

**Moderator:** Anna Ballance (Edison Electric Institute)

**Panelists**
- Laura Schepis (Edison Electric Institute)
- Kimberly Denbow (American Gas Association)
- Jon Stitzel (Ameren)

**TRACK 4: Infrastructure: Regional Resilience Assessment Program: A 10-Year Retrospective**

**Cochairs:** Cherrie Black (INL), John Hummel (ANL), Fred Petit (ANL)

**Location:** ZAPATA

**Presentations**
- RRAP: Resilience through Recovery
  - David Willey (DHS CISA)
- RRAP: Critical Infrastructure Resilience in Utah
  - Matthew Beaudy (Utah Department of Public Safety)
  - Scott Behunin (DHS CISA)
- RRAP: Addressing Drought in Texas
  - Sam Marie Hermitte (Texas Water Development Board)
  - John Hummel (Argonne National Laboratory)

12:00 – 1:30 **Hosted Lunch with Plenary Speaker**

**Location:** NAVARRO BALLROOM

12:25 – 12:30 **Introduction:** Jillian Vignoe, Senior Manager, Partnerships and Policy, Electricity Information Sharing and Analysis Center

12:30 – 1:30 **Anne Bomar, Senior Vice President, Gas Transmission Customer Commercial Services, Dominion Energy**

1:30 – 2:30 **TRACK 1: Control: Cyber-Physical Resilience**

**Cochairs:** Kevin Schultz (JHUAPL), Frank Ferrese (NAVSEA) and David Scheidt (WGT)

**Location:** VILLA

- Alternative Actuation Paths for Ship Applications in the Presence of Cyber-Attacks, Brien Croteau (University of Maryland, Baltimore County)
- Enabling Secure Grid Information Sharing through Hash Calendar-based Blockchain Infrastructures, Adam Hahn (Washington State University)

*Best Papers*
Towards Refinement and Generalization of Component State–Based Reliability Models, Sahra Sedigh Sarvestani (Missouri University of Science and Technology)

**TRACK 2:** Cyber: Cyber Physical Emulation and Virtualization  
**Cochairs:** David Manz (PNNL), Nicole Beebe (UTSA)  
**Location:** CAMINO REAL
- Cyber-Physical Emulation and Optimization of Worst-Case Cyber Attacks on the Power Grid, Anya Castillo (Sandia National Laboratories)
- Distributed Power System Simulation using Cyber-Physical Testbed Federation: Architecture, Modeling, and Evaluation, Vivek Kumar Singh (Iowa State University)

**TRACK 3:** Community Special Session Panel: CPS Energy and Resilience Planning  
**Moderator:** Bobby Jeffers (SNL)  
**Location:** SABINO
- Doug Melnick (City of San Antonio)  
- James Boston (CPS Energy)  
- Jenn Kallay (Synapse Energy Economics)  
- Vanessa Vargas (SNL)

**TRACK 4:** Industry Infrastructure Panel: Threat Information Sharing  
**Cochairs:** Hailey Siple (EEI), Anna Ballance (EEI), Jillian Vignoe (E-ISAC)  
**Location:** ZAPATA
- Laura Schepis (Edison Electric Institute)
- Sam Chanoski (Electricity Information Sharing and Analysis Center)  
- Ernesto Ballesteros (State Cybersecurity Coordinator for Texas)  
- Matt Bodman (Dragos)

2:30 – 3:30  
**TRACK 1:** Cyber: Frameworks  
**Cochairs:** David Manz (PNNL), Nicole Beebe (UTSA)  
**Location:** VILLA
- Recommended Functionalities for Improving Cybersecurity of Distributed Energy Resources, Ricardo Siqueira de Carvalho (National Renewable Energy Laboratory)
- A Review of Cybersecurity Risk and Consequences for Critical Infrastructure, Sri Nikhil Gupta Gouriseti (Pacific Northwest National Laboratory)
- Demonstration of the Cybersecurity Framework through Real-World Cyber Attack, Sri Nikhil Gupta Gouriseti (Pacific Northwest National Laboratory)
**TRACK 2: Communications: Wireless Security**  
**Cochairs:** Krishna Kant (TeU) and Gurdip Singh (SU)  
**Location:** CAMINO REAL  
- Plug and Play Flexible Signal Classification and Processing System, Christopher Becker (Idaho National Laboratory)  
- Physical Layer Security Analysis in The Priority-Based 5G Spectrum Sharing Systems, Morteza Soltani (University of Idaho)  
- Physical Layer Security for UAV Swarm Communications via Protected Zone, Yavuz Yapici (North Carolina State University)

**TRACK 3: Control Special Session: Renewable Energy Integration as the Catalyst for Distributed Grid Resilience**  
**Cochairs:** Jake Gentle (INL), Jay Caspary (SPP)  
**Location:** SABINO  
**Invited Speakers:**  
- Jay Caspary (Southwest Power Pool)  
- Bret Barker (Distributed Generation, DOE Wind Energy Technologies Office)  
- Guohui Yuan (DOE Solar Energy Technologies Office)

**TRACK 4: Industry Infrastructure Panel: Mutual Assistance Programs for Cyber and Physical Resilience**  
**Cochairs:** Hailey Siple (EEI), Anna Ballance (EEI), Kimberly Denbow (AGA), Sharla Artz (UTC)  
**Location:** ZAPATA  
**Moderator:** Peter Grandgeorge (Berkshire Hathaway Energy)  
**Panelists:**  
- Wally Mealiea (Edison Electric Institute)  
- David Batz (Edison Electric Institute)

3:30 – 4:00 BREAK

4:00 – 5:30 **TRACK 1: Cognitive Special Session: The Three Rs of Post-Event Resilience: Robustness, Recovery, Restoration**  
**Cochairs:** Kimberly Lewis (DoD), Megan Kendle (DoD), David Ball (DSTL)  
**Location:** VILLA  
- On the Use of Microworlds for an Error Seeding Method to Support Human Error Analysis, Thomas A. Ulrich (Idaho National Lab)  
- Operator Resilience to Cyber Interdictions in Nuclear Power Plants, Ronald L. Boring (Idaho National Lab)  
- Balancing Smart Grid’s Performance Enhancement and Resilience to Cyber Threat, Rezoan Shuvr (Marquette University)  
- Understanding the Human Element of Organisational Resilience to IEMI, (Invited paper), David Ball (Defence Science and Technology Laboratory)  
- Development of THREAT (The Human Reliability Effects Assessment Tool), (work in progress), Duncan Adam (Defence Science and Technology Laboratory)  
- Human Reliability Analysis in the Electric Grid Domain, (work in progress), Susan Adams (Sandia National Laboratories)

*Best Papers*
**TRACK 2:** Communications Special Session: Wireless Security Including 5G and Beyond  
**Cochairs:** Arupjyoti Bhuyan (INL), Gurdip Singh (SU)  
**Location:** CAMINO REAL  
**Presenters**  
- Serena M. Reynolds (Department of Homeland Security)  
- Stephen Hayes (Ericsson North America)  
- Arup Bhuyan (Idaho National Laboratory)

**TRACK 3:** Control Special Session Panel: Renewable Energy Integration as the Catalyst for Distributed Grid Resilience  
**Cochairs:** Jake Gentle (INL), Jay Caspary (SPP)  
**Location:** SABINO  
**Panelists**  
- Bret Barker (DOE WETO)  
- Jake Gentle (Idaho National Laboratory)  
- Alice Orrell (Pacific Northwest National Laboratory)  
- Jim Reilly (National Renewable Energy Laboratory)  
- Brian Naughton (Sandia National Laboratories)

**TRACK 4:** Infrastructure Industry: Owner Operator Panel  
**Moderator:** Cherrie Black (INL)  
**Location:** ZAPATA  
**Panelists**  
- Danielle Hale (Port of Corpus Christi)  
- Edwin "Lee" Otten (Department of Homeland Security)  
- Jake Krumnow (San Patricio Water District)  
- Charles Brower III (American Electric Power)  
- Brandon Luttrell (Moda Midstream & LEPC)

**6:30 – 8:30**  
**Attendee, VIP, and Best Paper Highlight Reception**  
**Location:** Biga on the Banks, 203 S St Mary's St
THURSDAY, NOVEMBER 7

7:30 – 8:25  Registration and Breakfast
Location: NAVARRO PREFUNCTION

8:25 – 9:30  Plenary Panel: Evolutionary Resilience Challenges to Achieve the Grid of the Future
Location: NAVARRO BALLROOM
8:25 – 8:30  Introduction: Ron Fisher, Homeland Security Division Director (INL)
Panelists
- Patricia Hoffman, Principal Deputy Asst. Secretary for Office of Electricity-DOE
- Rita Baranwal, Asst. Secretary for Nuclear Energy-DOE
- Kimberly Denbow, Sr. Director, American Gas Association
- Jonathon Monken, Sr. Director, PJM Interconnection

9:30 – 10:30  TRACK 1:  Community: Social Sciences and Simulation
Cochairs: Abraham Ellis (SNL), Ray Byrne (SNL)
Location: CAMINO REAL
- Resilience and mindfulness in active duty and veteran U.S. military service members, Valerie Rice (Army Research Laboratory)
- Newswire versus Social Media for Disaster Response and Recovery, Rakesh Verma (University of Houston Department of Computer Science)
- Identifying Heterogeneous Infrastructure Interdependencies through Multiverse Simulation, Craig Poulin (Northeastern)

TRACK 2:  Cyber Special Session: Firmware Code Analysis
Chair: Rita Foster (INL)
Location: VILLA
Panelists
- Rita Foster (Idaho National Laboratory)
- Jed Haile (Idaho National Laboratory)
- Talha Siddiqui (aDolus, Inc.)
- Andrew Storms (New Context)

TRACK 3:  Infrastructure: Lightning Talks
Cochairs: Cherrie Black (INL), John Hummel (ANL), Fred Petit (ANL)
Location: ZAPATA
- Introductory Analysis of NG911 Vulnerabilities, Laurie Trueax-Leffel and D. C. Grant
- Multi-Asset and System Assessment, Dave Dickinson, Frederic Petit, Dawn Howard, Debra Fredick, and Leslie-Anne Levy
- IP Gateway Special Event and Domestic Incident Tracker, Ovila T. Gagnon
- Vulnerability Factors of Hurricanes: Impact of Hurricane Maria in the Rural Community of Maricao, Puerto Rico, Laura Andrea Arce Polanco and Stephen Bayne

*Best Papers*
• Evaluating Cyber Risk Reporting in U. S. Financial Reports, Celia Porod, Ron Fisher, Lydia S. Greco, and Justin Wood
• Multi-label Classification of Infrastructure Related Text, Christopher Dixon

10:30 – 11:00 BREAK

11:00 – 12:00 TRACK 1: Community Special Session: Using Detailed Simulation Tools to Support Scenario-Based Analysis
Chair: Paul Roege (Typhoon-HIL)
Location: CAMINO REAL
Invited Presentations
• Ryan Jacobs (MITRE), Toward Systems of Systems Resilience Analysis with Graph Metrics
• Ivan Celanovic (Typhoon-HIL, Inc.), Real-Time Simulation to Support Operational Activities
• Igor Linkov (US Army ERDC), Resilience and Efficiency in Complex Systems
• Dan Bennett (NREL), Cyber Attack Visualization

TRACK 2: Communications: Communications Resilience
Cochairs: Krishna Kant (TeU) and Gurdip Singh (SU)
Location: VILLA
• Survivor-Centric Network Recovery for Search-and-Rescue Operations, Alaa A. R. Alsaeedy (Colorado State University)
• Cost-Aware Optimal Filter Assignment Policy Against Distributed Denial-of-Service Attack, Rajorshi Biswas
• Optimal Monitor Placement Policy Against Distributed Denial-of-Service Attack in Datacenter, Rajorshi Biswas

TRACK 3: Infrastructure: Lightning Talks
Cochairs: Cherrie Black (INL), John Hummel (ANL), Fred Petit (ANL)
Location: ZAPATA
• Security vs Safety in Cyber-Physical and IoT Systems, Marilyn C. Wolf
• Prairie Storm Exercise 2019 Case Study, William O. Redwood
• Improving the Water Sector’s Approach to Cybersecurity, Andrew Ohrt, Kevin Morley, and Dan Groves
• Teaching Resilience: Warboarding MicroSystems and Experimenting with Pen Testing, Larry R. Leibrock
• Can the Pyramid be Shared? Comparing the Risk Perspectives of the Industrial and Cyber Environments, John Hummel, Jennifer Schneider, Carol Romanowski, Sumita Mishra, Trevor Pfeffer, William Horstemke and Nate Evans
• Modeling and Spatial Temporal Analysis of Cyber-Physical Impacts, Tim Klett and Michael Haney

*Best Papers
12:00 - 1:30  Hosted Lunch with Plenary Speaker
Location: NAVARRO BALLROOM
12:25 - 12:30  Introduction: Zachary Tudor, National and Homeland Security Associate Laboratory Director (INL)
12:30 - 1:30  Howard Grimes, CEO of Cyber Manufacturing Innovation Institute (CyManII)

1:30 - 3:00  TRACK 1: Community: Resilience Analysis methods, role of technology, and institutional factors
Co-chairs: Abraham Ellis (SNL), Ray Byrne (SNL)
Location: CAMINO REAL
Panelists
- Venkat Banunarayanan (Integrated Grid Business & Technology Strategies, NRECA)
- Efrain O’Neill (University of Puerto Rico – Mayaguez)
- Jeremy Kasper (University of Alaska Fairbanks)
- Dayne Broderson (University of Alaska Fairbanks)

TRACK 2: Control Special Session: Cyber Physical Resilience in Smart Grids
Co-chairs: Nathan Lemons (LANL), Deepjyoti Deka (LANL)
Location: ZAPATA
- Emma Stewart (LLNL)
- Kate Davis (Texas A&M)
- Anna Scaglione (ASU)

3:00 - 3:30  BREAK

3:30 - 5:30  TRACK 1: Community: Resilient Power Systems Operations Simulation
Co-chairs: Jessica Lau (NREL), J P Watson (SNL)
Location: CAMINO REAL
- Resilient Power Systems Modeling and Simulation, Jessica Lau (NREL)
- Consequence Modeling for Multi-Sector Resilience Analysis, Andrea Staid (SNL)
- Resilience Metrics for Analysis of Gas and Power Grid Infrastructures, Bobby Jeffers (SNL)
- Bayesian Methods to Assess Recovery and Restoration Strategies, Hiba Baroud (Vanderbilt)
- Scalable Models for Multi-Sector Resources, Ben Knueven (SNL)

TRACK 2: Cyber Special Session: Agile cybersecurity response capabilities for control systems
Chair: Andrew Storms (New Context)
Location: ZAPATA
Panelists
- Rita Foster (Idaho National Laboratory)
- Jed Haile (Idaho National Laboratory)
- Andrew Storms (New Context)
FRIDAY, NOVEMBER 8 – OPTIONAL TOURS

**Individuals are responsible for their own transportation**

9:00 – 12:00

**TOUR OPTION 1: Southwest Research Institute**
- Join tour at 6220 Culebra Road, San Antonio, TX 78238-5166
- Tour Contact: Victor Murray 210.522.6589
- Click [HERE](#) for more details

**TOUR OPTION 2: San Antonio Office of Emergency Management**
- Join tour at 8039 Challenger Drive, San Antonio, Texas 78235
- Tour Contact: Ashley Carter, 210.206.8551
- Click [HERE](#) for more details

**TOUR OPTION 3: The University of Texas at San Antonio College of Engineering**
- Join tour at UTSA Main Campus, One UTSA Circle, San Antonio 78249 (Park in Tobin Garage)
- Tour Contact: Patricia Geppert, PhD, 210.663.6725
- Click [HERE](#) for more details