



**Fifteenth Annual IFIP WG 11.10 International Conference on  
Critical Infrastructure Protection**  
**Fully Virtual (All Times U.S. Eastern Standard Time: UTC-5)**  
**March 15-16, 2021**

**March 15, 2021 (Monday)**

**08:50am - 09:00am: Welcoming Remarks and Logistics**

**09:00am - 10:00am: Session 1**

Chair: David Balenson, SRI International, Arlington, Virginia, USA

*Deployment of a Security Framework for a Railway System*

Raymond Chan and Forest Tan

Singapore Institute of Technology, Singapore, Singapore

*Security Analysis of Firmware Protection in an Industrial Robot*

Chun-Fai Chan and Kam-Pui Chow

University of Hong Kong, Hong Kong, China

**10:00am - 11:00am: Keynote Lecture**

*A Consequence-Based Approach to Supply Chain Security*

Zachary Tudor, Associate Laboratory Director, National and Homeland Security, Idaho National Laboratory, Idaho Falls, Idaho, USA

**11:00am - 11:15am: Break**

**11:15am - 12:45pm: Session 2**

Chair: Raymond Chan, Singapore Institute of Technology, Singapore, Singapore

*Statutory Cyber Security Requirements in the Energy Sector -- Real Risk Reduction or a Speedbump?*

Janne Hagen and Oyvind Toftegaard

Norwegian Water Resources and Energy Directorate, Oslo, Norway

*Defining Cyber Security Awareness Requirements for Operational Technology Systems*

Timothy Ellis, David Balenson and Michael Locasto

SRI International, San Diego, California, USA

SRI International, Arlington, Virginia, USA

SRI International, New York, New York, USA

*A Framework for Critical Infrastructure Prioritization and Dependency Analysis*

Timothy Klett and Michael Haney

University of Idaho, Idaho Falls, Idaho, USA

**12:45pm - 01:00pm: Break**

**01:00pm - 02:00pm: Keynote Lecture**

*Trends in U.S. Department of Energy Funded Research in Critical Infrastructure Protection*

Mason Rice, Section Head, Resilient Complex Systems, National Security Directorate, Oak Ridge National Laboratory, Oak Ridge, Tennessee, USA

**02:00pm - 02:30pm: Session 3**

Chair: Michael Haney, University of Idaho, Idaho Falls, Idaho, USA

*Infiniband Network Monitoring: Challenges and Possibilities*

Kyle Hintze, Scott Graham, Stephen Dunlap and Patrick Sweeney

Air Force Institute of Technology, Wright-Patterson Air Force Base, Ohio, USA

## **March 16, 2021 (Tuesday)**

### **09:00am - 10:00am: Session 4**

Chair: Scott Graham, Air Force Institute of Technology, Wright-Patterson Air Force Base, Ohio, USA

*Detecting Anomalous Programmable Logic Controller Events Using Process Mining*

Ken Yau, Kam-Pui Chow and Siu-Ming Yiu  
University of Hong Kong, Hong Kong, China

*GPS Signal Authentication Using the Chameleon Hash Keychain*

Yu Han Chu, Sye Loong Keoh, Chee Kiat Seow, Qi Cao, Wen Kai and Soon Yim Tan  
University of Glasgow, Glasgow, United Kingdom,  
Nanyang Technological University, Singapore, Singapore

### **10:00am - 11:00am: Keynote Lecture**

*Enabling 5G Communications to Support U.S. Department of Defense Mission Requirements*

Dan Massey, Program Lead, Operate Through, U.S. DoD 5G to NextG Initiative, U.S. Department of Defense, Washington, DC, USA

### **11:00am - 11:15am: Break**

### **11:15am - 12:45pm: Session 5**

Chair: Kam-Pui Chow, University of Hong Kong, Hong Kong, China

*Analyzing Advanced Persistent Threats Using Game Theory*

Rajesh Kumar, Rohan Kela and Siddhant Singh  
Birla Institute of Technology, Pilani, India

*A Communications Validity Detector for SCADA Networks*

Prashant Anantharaman, Anmol Chachra, Shikhar Sinha, Michael Millian, Bogdan Copos, Sean Smith and Michael Locasto  
Dartmouth College, Hanover, New Hampshire, USA  
SRI International, New York, New York, USA

*Simulating and Detecting Measurement Attacks in SCADA Testbeds*

Brandt Reutimann and Indrakshi Ray  
Colorado State University, Fort Collins, Colorado, USA

### **12:45pm - 01:00pm: Break**

### **01:00pm - 02:00pm: Session 6**

Chair: Sujeet Sheno, University of Tulsa, Tulsa, Oklahoma, USA

*Anomaly Detection in Automation Controllers*

Robert Mellish, Scott Graham, Stephen Dunlap and Patrick Sweeney  
Air Force Institute of Technology, Wright-Patterson Air Force Base, Ohio, USA

*Attacking the IEC-61131 Logic Engine in Programmable Logic Controllers*

Syed Ali Qasim, Adeen Ayub, Jordan Johnson and Irfan Ahmed  
Virginia Commonwealth University, Richmond, Virginia, USA  
Oak Ridge National Laboratory, Oak Ridge, Tennessee, USA