



**Sixteenth Annual IFIP WG 11.10 International Conference on
Critical Infrastructure Protection**
Fully Virtual (All Times U.S. Eastern Standard Time: UTC-5)
March 14-15, 2022

March 14, 2022 (Monday)

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

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

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

Are European Security Policies Ready for Advanced Metering Systems with Cloud-Based Back-Ends?

Øyvind Toftegaard, Janne Hagen and Bernhard Hämmerli

Norwegian University of Science and Technology, Gjøvik, Norway

Norwegian Energy Regulatory Authority, Oslo, Norway

Norwegian Water Resources and Energy Directorate, Oslo, Norway

University of Oslo, Oslo, Norway

Lucerne University of Applied Sciences, Lucerne, Switzerland

Leveraging Confidential Computing to Enable Secure Information Sharing

Samuel Chadwick, Scott Graham, James Dean and Matthew Dallmeyer

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

10:00am - 10:50am: Keynote Lecture

National Cyber Resilience and Roles for Public and Private Sector Stakeholders

Neal Ziring, Technical Director, Cybersecurity Directorate, National Security Agency, Fort Meade, Maryland, USA

10:50am - 11:00am: Break

11:00am - 12:30pm: Session 2

Chair: Leon Strous, Senior Policy Advisor, De Nederlandsche Bank, Amsterdam, The Netherlands

Radio Frequency Identification and Tracking of Vehicles and Drivers by Exploiting Keyless Entry Systems

James Ashworth, Jason Staggs and Sujeet Sheno

University of Tulsa, Tulsa, Oklahoma, USA

Improving WirelessHART Trust in Critical Infrastructure Applications

Matthew Maier, Addison Betances, Hunter Hayden, Michael Temple and Matthew Fickus

Air Force Research Laboratory, Wright-Patterson Air Force Base, Ohio, USA

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

Securing InfiniBand Traffic with the Bluefield-2 Data Processing Unit

Noah Diamond, Scott Graham and Gilbert Clark

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

Air Force Research Laboratory, Wright-Patterson Air Force Base, Ohio, USA

12:30pm - 01:15pm: Break

01:15pm - 02:15pm: Keynote Lecture

Defenseless in Depth

Jonathan Butts, Co-Founder, QED Secure Solutions, Coppell, Texas, USA

March 14, 2022 (Monday)

02:15pm - 03:15pm: Session 3

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

Attack-Defense Modeling of Material Extrusion Additive Manufacturing Systems

Alyxandra Van Stockum, Elizabeth Kurkowski, Tiffany Potok, Curtis Taylor, Joel Dawson, Mason Rice and Sujeet Shenoj
University of Tulsa, Tulsa, Oklahoma, USA

Oak Ridge National Laboratory, Oak Ridge, Tennessee, USA

Low-Magnitude Infill Structure Manipulation Attacks on Fused Filament Fabrication Printers

Muhammad Rais, Muhammad Ahsan, Vaibhav Sharma, Radhika Barua, Robert Prins and Irfan Ahmed
Virginia Commonwealth University, Richmond, Virginia, USA

James Madison University, Harrisonburg, Virginia, USA

03:15pm - 03:30pm: Break

03:30pm - 04:30pm: Session 4

Chair: Tricia Schulz, Oak Ridge National Laboratory, Oak Ridge, Tennessee, USA

On the Importance of Cyber Security Analysis in the Operational Technology System Lifecycle

Laura Tinnel and Ulf Lindqvist

SRI International, Menlo Park, California, USA

A Backfit Approach for Trusted Virtualization-Based Programmable Logic Controller Resilience

James Cervini, Daniel Muller, Alexander Beall, Joseph Maurio, Aviel Rubin and Lanier Watkins
Johns Hopkins University, Baltimore, Maryland, USA

Johns Hopkins University Applied Physics Laboratory, Laurel, Maryland, USA

March 15, 2022 (Tuesday)

09:00am - 10:00am: Session 5

Chair: Richard George, Johns Hopkins University Applied Physics Laboratory, Laurel, Maryland, USA

A Secure Deployment Checklist for Building Management Systems

Raymond Chan, Wye Kaye Yan, Alaric Tang, Jingquan Chen and Malcolm Low

Singapore Institute of Technology, Singapore, Singapore

Firefish Communications, Singapore, Singapore

A High Interaction Physics-Aware Industrial Control System Honey-pot for Production Environments

Kirishikesan Kannan, Ayesh Hallawaarachchi, Gayakantha Jayakody and Chandana Gamage

University of Moratuwa, Moratuwa, Sri Lanka

10:00am - 10:15am: Break

10:15am - 11:15am: Keynote Lecture

Drivers and Research Challenges for Assured Critical Infrastructure

Andy Oak, Homeland Protection Mission Protection Mission Area Executive, Johns Hopkins University Applied Physics Laboratory, Laurel, Maryland, USA

11:15am - 12:15pm: Session 6

Chair: Janne Hagen, Norwegian Water Resources and Energy Directorate, Oslo, Norway; and University of Oslo, Oslo, Norway

Manipulation of G-Code Toolpath Files in 3D Printers: Attacks and Mitigations

Elizabeth Kurkowski, Alyxandra Van Stockum, Joel Dawson, Curtis Taylor, Tricia Schulz and Sujeet Sheno

University of Tulsa, Tulsa, Oklahoma, USA

Oak Ridge National Laboratory, Oak Ridge, Tennessee, USA

Detecting Printed Part Anomalies Induced by Cyber Attacks on a Powder Bed Fusion Additive Manufacturing System

Elizabeth Kurkowski, Mason Rice and Sujeet Sheno

University of Tulsa, Tulsa, Oklahoma, USA

Oak Ridge National Laboratory, Oak Ridge, Tennessee, USA

12:15pm - 01:00pm: Break

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

Secure Manufacturing and Supply Chain Networks: Challenges and Opportunities

Gabriela Ciocarlie, Associate Professor of Electrical and Computer Engineering, University of Texas at San Antonio, San Antonio, Texas USA; and Vice President for Securing Automation and Secure Manufacturing Architecture, CyManII, San Antonio, Texas, USA

02:00pm - 03:00pm: Session 7

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

Boot Image Encryption on the Talos II

Calvin Muramoto, Scott Graham and Stephen Dunlap

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

Digital Twins in the Energy Sector

Roxanne Holden

Johns Hopkins University Applied Physics Laboratory, Laurel, Maryland, USA