



# ENERGY & POWER RESEARCH DAY

**Texas A&M Engineering Experiment Station Smart Grid Center (SGC)**

**Department of Electrical and Computer Engineering  
Energy and Power Group (EPG)**

Room 1107-1108  
Center for Infrastructure Renewal (CIR), Texas A&M University System  
1041 RELLIS Parkway, Bryan TX 77807

**Friday, April 28, 2023**

## **Agenda**

- 8:30 - 9:00** Arrival and Check-in; Light Continental Breakfast Provided
- 9:00 - 9:30** Welcome, SGC and EPG Overview (Tom Overbye)
- 9:30 - 9:55** Blockchain and Energy: Understanding the Impact of Cryptomining on Power Grid (Le Xie)
- 9:55 - 10:20** Physics-Aware and AI-Enabled Cyber-Physical Intrusion Response for the Power Grid (Kate Davis)
- 10:20 - 10:35** Break

### **Research Session 1 (Kate Davis, Session Chair) (10:35 to 11:50, Room 1107-1108)**

- 10:35 - 11:00** Innovative Black Start Procedures (Adam Birchfield)
- 11:00 - 11:25** An Approach for the Direct Inclusion of Weather Information in the Power Flow (Farnaz Safdarian)
- 11:25 - 11:50** Energy Consumption and Power Quality in Bitcoin Mining Facilities in Texas (Sama Abdulsattar A. Almubarak, Prasad Enjeti)
- 11:50 - 13:15** **Lunch; Hands-On Activities and Demos**

**Lunch (Pre-function Area and Room 1107-1108)**  
**Control Room Hands-On Activities and Demos (Rooms 3339 and 3350)**

### **Research Session 2 (Jonathan Snodgrass, Session Chair) (13:00 to 15:00, Room 1107-1108)**

- 13:15 - 13:35** Harnessing the n-Grid Flexibility for Transmission/Distribution Grid Support (Mohammad Khoshjahan)
- 13:35 - 14:00** Power Electronics Dominated Grid (Haitham Abu-Rub)
- 14:00 - 14:25** Quantification of Area Sparsity in Large-Scale Electric Grids (Sanjana Kunkolienkar)
- 14:25 - 14:50** New Building at RELLIS for EPG Research (Robert Balog)
- 14:50 - 15:00** Break



**Research Session 3: Power Systems Cybersecurity Roundtable: Challenges & Opportunities in Grid Cyber-Physical Intrusion Response (Kate Davis, Session Chair) (13:15 to 15:00, Room 1109)**

- 13:15 - 13:20** Scalable Cyber-Physical Optimal Response: Industry/Academic Path (Kate Davis)
- 13:20 - 13:30** Assessing the Cyber Network to Aid Response (NPView- Robin Berthier)
- 13:30 - 14:00** Assessing Human Interactions to Aid Response (TDi- Bill Johnson)
- 14:00 - 14:10** Power System Use of AI in Response with Real World Data (EPE- Hala Ballouz)
- 14:10 - 14:20** Intrusion Response in the Real World (TBD)
- 14:20 - 14:50** Panel Discussion (All, TBD, led by SCORE project team – Saman Zonouz, Ana Goulart, Rakesh Bobba)
- 14:50 - 15:00** Closing, Next Steps (Kate Davis)

**Research Session 4 (Farnaz Safdarian, Session Chair) (15:00 to 16:00, Room 1107-1108)**

- 15:00 - 15:25** Active Transmission: the "Transmotor" for Vehicles and Wind Turbines (Ramin Tafazzoli)
- 15:25 - 15:50** New Developments in Geomagnetic Disturbance Analysis (Jonathan Snodgrass)
- 15:50 - 16:00** Closing (Thomas Overbye)
- 16:00** **Adjourn**

## **Logistics**

The event will be held at the Texas A&M Center for Infrastructure Renewal (CIR). CIR is on the Texas A&M RELIS campus. For parking at CIR, TAMU parking permits apply, otherwise for free parking, when entering to the CIR building you must to provide your car's license plate number at the front desk.

For any issues associated with the event contact either Tom Overbye ([overbye@tamu.edu](mailto:overbye@tamu.edu), cell: 217-649-9488) or Andrea Kishne ([akishne@tamu.edu](mailto:akishne@tamu.edu), office: 979-317-1285) or Kelly Nickinson ([kelly.ford@tamu.edu](mailto:kelly.ford@tamu.edu)); the CIR conference wing contact is Samantha Lipscomb ([cirevents@tamu.edu](mailto:cirevents@tamu.edu)).



## Smart Grid Center

Texas A&M Engineering Experiment Station



## Energy & Power Group

ELECTRICAL AND COMPUTER ENGINEERING

### Directions and Parking

- CIR building is marked with #20 on the RELIS campus map.
- Parking is available nearby the CIR building. **For Guests without Texas A&M University parking permits**, parking is available with no fee charged, just, please follow instructions shown below:
  - CIR staff will register you upon arrival.
  - You must provide name, license plate number and reason for visit.
  - Permits are tag-less and are monitored using license plate recognition.

Maps are shown below.

