



TEXAS A&M UNIVERSITY

Department of Electrical  
& Computer Engineering

TRANSFORMING ENGINEERING EDUCATION

# ENERGY & POWER GROUP SEMINAR

## Modern Methods in Electromagnetic Transient Simulations

### Abstract

Electromagnetic transient (EMT) simulations provide a precise method to simulate and assess stability of disturbances on electrical networks. Due to a rise in Inverter Based Resources (IBRs), EMT simulations are increasingly required to simulate at a



smaller time step to accurately model high frequency grid interactions. To reduce the time-complexity of simulating large networks, the grid is often partitioned into low- and high-resolution regions, where multi-scale integration allows for approximate time-domain solutions. This seminar will demonstrate the applications of vector fitting, frequency dependent line parameters, and co-simulation techniques that aid modern grid simulation technology.

### Luke Lowery

Ph.D. Student  
Electrical & Computer Engineering  
Texas A&M University

**Friday, February 7**  
**11:30 am**  
**241 ZACH**

### Biography

Luke Lowery is a second year PhD student from Dallas, TX. Research interests include optimization, power system stability, geomagnetic disturbances, and signal processing on graphs. With his advisor, Dr. Birchfield, Luke has been able to apply his skills to Energy and Power research as a proud Aggie.