

# Energy and Power Group

## Weekly Seminar Series

Friday, September 27<sup>th</sup>, 2019, 9:10 a.m. – 10:10 a.m., ETB 1020

### **Geomagnetic Disturbances: What They Are, and What We Do**



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#### **Abstract**

We will discuss the phenomenon of geomagnetic disturbances (GMDs) and how they affect the power grid. This takes us through the modeling process which involves the sun, the earth's magnetic field, deep earth conductivity, electric fields, and finally the power grid. Specific concerns with geomagnetically induced currents (GICs) are voltage collapse and transformer overheating, which could and have led to blackouts. We will talk about what has been done, and continues to be pursued, in the quest to keep the power grid safe and secure from the looming threat of a major GMD event.

#### **Biography**

Komal Shetye is an Associate Research Engineer - Elig, at the Texas Engineering Experiment Station (TEES), at Texas A&M University. She was working as Senior Research Engineer in the Information Trust Institute, at the University of Illinois at Urbana-Champaign from October 2011 till January 2017. She holds a B.Tech. in Electrical Engineering from the University of Mumbai (2009) and earned an MSEE in Power Systems (2011) from UIUC. She has worked on several projects with utilities such as BPA, AEP, ATC, ComEd, Entergy, and TVA. Her work has dealt with topics such as power system dynamics and stability, model validation, synchrophasors, synthetic networks, and assessing the impact of geomagnetic disturbances (GMDs) on the power grid. She has actively participated in the NERC GMD Task Force meetings since 2012. She has been invited to present her work at panels, conferences, and provide tutorials at IEEE PES General Meetings, NASPI, American Geophysical Union, and IIT Bombay to name a few. She has held prior industry internships in India at Crompton Greaves (Transformer Design), Schneider Electric (Switchgear), and Honeywell Automation India Ltd. (Building EMS).