

INTRODUCTION TO FREEDM

The Future Renewable Electric Energy Delivery and Management (FREEDM) Systems Center is a National Science Foundation Engineering Research Center founded in 2008 with a grand challenge to modernize the distribution grid. We apply new research in power electronics and controls to connect more distributed energy resources to the grid.

WHO WE ARE

We are university faculty and students from NC State, Arizona State, Florida State, Florida A&M and Missouri S&T. We are dozens of corporate members and hundreds of individual supporters. We are a partnership of faculty, students and industry leveraging our resources together.

INDUSTRY RELEVANT RESEARCH

Our industry members help direct our research, contributing to discussions about selection and prioritization of projects on power electronics, solid-state transformers, distributed energy storage, distributed controls, and system-level integration. In 2011, MIT Technology Review named our smart solid-state transformer one of the world's 10 most innovative emerging technologies. Recently, we developed a silicon carbide based inverter for motor drives rated at 99 percent efficiency.

PEOPLE

Center members gain early access to our inventions and early access to our best product: our graduates. They study the fundamentals of power electronics and power engineering and apply those principles in the context of complex systems. Once immersed in our approach, our graduates emerge as energy leaders and engineers who see the big picture — and shape it.

LOCATION

Our headquarters on NC State's Centennial Campus boasts multiple labs including high bay space with a 12 kV, 1 MVA loop feeder, a real-time digital simulation lab, and 3D printed power electronics packaging capabilities. FSU hosts one of the largest RTDS installations in the world.

CONTACT

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FREEDM Members



IEEE T&D 2018 FREEDM Speaker/Presentation Schedule

Day/Time	Session/Presenter	Topic
Tuesday 4/17		
10:00am- 12:00pm	PS2- Dr. Ning Lu	Provision of Grid Services from DR Resources
10:00am-12:00pm	Paper 18TD0130- Lisha Sun, Dr. David Lubkeman, Dr. Mesut Baran	Paper Forum Session 1- Power System Economics
1:00pm-3:00pm	Paper 18TD0439- X. Zhu, J. Wang, Dr. Lu	Paper Forum Session 2- Power System Op. & Planning
1:00pm- 3:00pm	PS 13- Dr. Ning Lu	Business Cases for Microgrid Implementation
3:15pm-5:15pm	Paper 18TD0256- M. Liao	Paper Forum Session 3- Analytic Methods for Power Systems
3:15pm-5:15pm	Paper 18TD0348- Y. Du, H. Tu, Dr. Lukic, Dr. Lubkeman	Paper Forum Session 3- Analytic Methods for Power Systems
Wednesday 4/18		
3:15pm-5:15pm	Paper 18TD0232- F. Hafiz	Paper Forum Session 6- Transmission & Distribution
5:00pm-7:00pm	Paper 18TD0156- G. Henri, Dr. Lu	Poster Session & Reception
5:00pm-7:00pm	Paper 18TD0215- R. Jain, Dr. Lukic, Dr. Lubkeman	Poster Session & Reception