

Workshop on Power Electronics for Aerospace Applications (PEASA) High Voltage

June 17, 2022

Westin Anaheim Resort, Anaheim, California

Scope and Topics:

PEASA 2022 is a one-day workshop co-organized by the Technical Committee on Aerospace Power (TC11) of the IEEE Power Electronics Society (PELS) and 2022 IEEE/AIAA Transportation Electrification Conference and Electric Aircraft Technologies Symposium (ITEC+EATS). It aims to provide a forum for researchers, engineers, policy makers, and stakeholders to share latest developments of power electronics technologies for aerospace applications. Each year, the workshop will focus on a specific topic, such as electric propulsion, electromagnetic interference (EMI), electric vertical take-off and landing (eVTOL), power converters for space applications, control and protection of onboard power distribution systems, radiation hardened designs, reliability, etc. This year's workshop focuses on high voltage related topics for aerospace power electronics, which includes:

- High-performance insulation materials (e.g., high temperature and high dielectric strength)
- Dielectric materials characterization (e.g., dielectric spectroscopy, dielectric strength)
- Insulation material breakdown mechanisms (e.g., space charges in dielectrics)
- Insulation designs for power electronics converters (e.g., electric field grading techniques, overvoltage suppression, and insulation coordination)
- High-voltage cables and connectors
- Preventions of partial discharge, treeing, breakdown and arc
- Insulation reliability under extreme operation conditions (e.g., high altitude, high radiation, high temperature and high dv/dt voltage pulse)
- High-voltage testing techniques and standards
- Insulation condition monitoring, diagnostics and maintenance

Student Travel Grant

A limited number of student travel grant \$500 each, is made available by the Technical Committee on Aerospace Power (TC11) of the IEEE Power Electronics Society. To apply for the travel grant, students need send their resumes to Dr. Yue Cao at yue.cao@oregonstate.edu. Priorities will be given to students with papers at ITEC+.

Registration:

Full ITEC+ registration or ITEC+ day pass for June 17th

Contact:

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Maricela Lizcano, NASA, maricela.lizcano@nasa.gov

Preliminary Agenda

		Speaker/Affiliation	Speaker Affiliation
8:30-8:40	Sign in		
8:30-8:40	Welcome Address	Liuchen Chang	President, IEEE Power Electronics Society
8:40-8:50	Welcome Address	Timothy P. McCartney	Aeronautics Director, NASA Glenn Research Center
8:50-9:20	Introduction	Dan Schweichart	Air Force Research Laboratory
9:20-9:40	Invited talk	Maricela Lizcano	NASA Glenn Research Center
9:40-10:00	Invited talk	Isik Kizilyalli, ARPA-E	ARPA-E
10:00-10:20	Invited talk	Tom Taylor	SAE AE10/Boeing
10:20-10:40	Invited talk	Andrea Cavallini	IEEE DEIS/University of Bologna
10:40-11:00	Break		
11:00-11:20	Invited talk	Wenjun Yin	SAE AE11/GE
11:20-11:40	Invited talk	Gian Carlo Montanari	Florida State Univ.
11:40-12:00	Invited talk	Thierry Lebey	Safron
12:00-12:20	Invited talk	Jean Rivenc	Airbus/EATS Student Competition
12:30-1:30	Lunch		
1:30-2:30	Panel	Andy Woodworth (Moderator)	NASA Glenn Research Center
		Mike Walz	FAA
		Ian Cotton	U. Manchester
		Jin Wang	The Ohio State University
		Chris Seventh	Boeing (Retired)
		Xin Wu	Raytheon Technology Research Center

2:30-3:30	Focus groups discussions	Partial discharge challenges	Insulation material	Dc arc and protection	Insulation design	Testing and standards
	Group leaders	Ian Cotton, U. Manchester	Cao Yang, U. Connecticut	Chris Seventh, Boeing	Zach Cole, Wolfspeed	Terry Lantz, NASA
	Group co-leader/scribes	Kristina Valonis, NASA	Tiffany Williams, NASA	George Slenski, NASA (To be confirmed)	TBD	Witold Fuchs, NASA
3:30-4:30	Report out and further discussions					
4:30	Adjourn					