

CENTER FOR DIELECTRICS AND PIEZOELECTRICS
Fall 2022 Meeting
Ramada Conference Center, State College, Pennsylvania
October 5-7, 2022

AGENDA

Wednesday, October 5, 2022:

7:30AM-5:00PM		<i>Registration (Conference Center Lobby)</i>	
7:30 – 8:30 AM		<i>Breakfast</i>	<i>Ballroom B</i>
8:30 – 9:00 AM		Welcome and Introductions/LIFE Form Discussion	<i>Susan Trolier-McKinstry and Beth Dickey</i>
9:00 AM–12:00 PM	<u>SESSION I (Ballroom A):</u>		
9:00 – 9:20 AM	I-1	Designing Highly Reliable Dielectrics with Cold Sintering_(Randall) CDP_2022_2	<i>Jake DeChiara (PSU)</i>
9:20 – 9:25		Q&A for CDP_2022_2	
9:25 – 9:45	I-2	Determining Relationships between Burn-in Conditions and Wear-Out in BME X7R MLCCs (Randall) CDP_2022_3	<i>Pedram Yousefian (PSU)</i>
9:45 – 9:50		Q&A for CDP_2022_3	
9:50 – 10:20		<i>Break (Lobby)</i>	
10:20 – 10:40	I-3	High Field Measurements on Polymer Dielectrics (Lanagan/Meddeb) CDP_2022_7	<i>Amira Meddeb (PSU)</i>
10:40 – 10:45		Q&A for CDP_2022_7	
10:45 – 11:05	I-4	Emergent Ferroelectricity in Oxide Membranes	<i>Ruijuan Xu (NCSU)</i>
11:05 –11:10		Q&A for I-4	
11:10 – 11:30	I-5	Atomic Layer Deposited Dielectrics	<i>Greg Parsons (NCSU)</i>
11:30-11:35		Q&A for I-5	
11:35-11:55	I-6	Slot Die Deposition of Functional Ceramics	<i>Ian Reaney (UoS)</i>
11:55 AM-12:00 PM		Q&A for I-6	
12:00 -1:00 PM		<i>Lunch</i>	<i>Ballroom B</i>
1:00 – 1:30 PM		Move to Millennium Science Complex for Optional Tutorial	

1:30-4:00	Tutorial, “Reliability in Dielectrics and Piezoelectrics”, Clive Randall, Beth Dickey, and Betul Akkopru-Akgun	3 rd Floor Commons, Millennium Science Complex, Penn State Campus
4:30-5:00	Return to Ramada Conference Center	
5:00 – 7:00 PM	Poster Session/Reception	Conference Center Lobby
7:00 – 9:00 PM	W.R. Buessem Award Banquet	Ballroom B

Thursday, October 6, 2022:

7:30 AM-5:00 PM	Registration (<i>Lobby</i>)	
8:00 – 9:00 AM	Breakfast (Regular meeting) (Buffet in Ballroom B for both groups)	Ballroom B
8:00 – 9:00 AM	Student/CDP Member Breakfast (Student Mentoring Session)	Chairman’s Room
9:00 AM–11:35 PM	<u>SESSION II (Ballroom A)</u>	
9:00 – 9:20 AM	II-1 Beyond 5G – Electromagnetic Property Characterization at THz Frequencies (<i>Lanagan</i>) CDP_2022_6	Rocio Rodriguez (PSU)
9:20 – 9:25	Q&A for CDP_2022_6	
9:25 – 9:45	II-2 Additively Manufactured Antennas and Electromagnetic Devices	Gregory Huff (PSU)
9:45 – 9:50	Q&A for II-2	
9:50 – 10:10	II-3 Designing Novel Dielectric Composites with High Thermal Conductivity Enabled by Cold Sintering (<i>Randall</i>) CDP_2021_4	Javier Mena Garcia (PSU)
10:10 – 10:15	Q&A for CDP_2021_4	
10:15 – 10:45	Break (<i>Lobby</i>)	
10:45 – 11:05	II-4 Ferroelectric and Piezoelectric Opportunities (<i>Maria</i>) CDP_2022_9	Max Tolchin (PSU)
11:05 – 11:10	Q&A for CDP_2022_9	
11:10-11:30	II-5 Effective Moisture Protection for Bulk and Thin Film Piezoelectric Actuators (<i>Trolier-McKinstry</i>) CDP_2022_1	Anthony Diaz-Huemme (PSU)

11:30-11:35	Q&A for CDP_2022_1	
11:35 AM-1:00 PM	<i>Lunch</i>	<i>Ballroom B</i>
1:00 – 2:50 PM	<u>SESSION III (Ballroom A)</u>	
1:00 – 1:20	III-1 Acoustic Characterization of Damage in Multilayer Ceramic Capacitors (<i>Arguelles/Trolier-McKinstry</i>) CDP_2022_4	<i>Haley Jones (PSU)</i>
1:20 – 1:25	Q&A for CDP_2022_4	
1:25 – 1:45	III-2 Advancing Solid State Reaction Science through in-situ Diffraction and Processing Control (<i>Jones/Forrester</i>) CDP_2022_5	<i>Jacob Jones/Leah Bellcase (NCSU)</i>
1:45 – 1:50	Q&A for CDP_2022_5	
1:50-2:10	III-3 4D STEM: a flexible tool for materials characterization from micrometer to sub-Angstrom scales	<i>Stephen Funni (CMU)</i>
2:10-2:15	Q&A for III-3	
2:15-2:35	III-4 Through Thickness Variations of Degradation Phenomena in Piezoelectric and Ferroelectric Ceramics (<i>Balke/Jones</i>) CDP_2022_8	<i>Nina Balke (NCSU)</i>
2:35-2:40	Q&A for CDP_2022_8	
2:40-3:10	<i>Break (Lobby)</i>	
3:10 – 4:50 PM	<u>SESSION IV (Ballroom A)</u>	
3:10-3:30 PM	IV-1 Electromechanical Reliability in PiezoMEMS (<i>Akkopru-Akgun/Trolier-McKinstry</i>) CDP_2021_1	<i>Betul Akkopru-Akgun (PSU)</i>
3:30-3:35	Q&A for CDP_2021_1	
3:35-3:55	IV-2 Effects of Electrode Compensation and Potential on Moisture Incorporation and Degradation of Dielectric and Piezoelectrics (<i>E. Dickey/Irving</i>) CDP_2021_2	<i>Beth Dickey (CMU/NCSU)</i>
3:55-4:00	Q&A for CDP_2021_2	
4:00 – 4:20	IV-3 Defect Kinetics in Lead-Free Ferroelectrics (<i>Randall</i>) CDP_2021_3	<i>Zhongming Fan (PSU)</i>

4:20 – 4:25	Q&A for CDP_2021_3	
4:25-4:45	IV-4 Thermally-aware design of the active piezoelectric and passive elastic layers of PZT/Al _{1-x} Sc _x N thin film piezoelectric MEMS (<i>Choi/Trolier-McKinstry</i>) CDP_2021_5	<i>Yiwen Song (PSU)</i>
4:45-4:50	Q&A for IV-4	
4:50 PM	<i>Close of Meeting</i>	
Evening	<i>Dinner on your own</i>	

Friday, October 7, 2022:

8:00 AM – 1:00 PM <i>Industrial Advisory Board Meeting (Members and Faculty Only:</i>		
8:00-9:00 AM	<i>IAB Breakfast</i> (<i>CDP member company private breakfast meeting</i>)	<i>Ballroom B</i>
	<i>Breakfast</i> (<i>Faculty/Staff</i>)	<i>Executive Forum</i>
	<i>(Breakfast Buffet in Ballroom B for both groups)</i>	
9:00 AM – 12:00 PM	Industrial Advisory Board Meeting (<i>Industry Members and CDP Faculty Only</i>)	<i>Executive Forum</i>
12:00 – 1:00 PM	Lunch for Industrial Advisory Board	<i>Ballroom B</i>
1:00 PM	Close of Industrial Advisory Board Meeting	
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<b>2:00-4:00 PM</b>	<b>Optional Lab Tours at Millennium Science Complex</b> ( <i>please sign up at Registration Desk</i> )	<b><i>Betul Akkopru-Akgun and Steve Perini</i></b>