

## CENTER FOR DIELECTRICS AND PIEZOELECTRICS

Spring 2023 Meeting  
Sheraton Hotel, Raleigh, North Carolina  
June 28-29, 2023

### AGENDA

#### Wednesday, June 28, 2023:

7:30 AM – 5:00 PM Registration  
(Mezzanine)

7:30 AM – 8:30 AM Breakfast  
(Hannover II & III)

#### 8:30 AM – MEETING BEGINS (Oak Forest A)

8:30 – 9:00 AM Welcome and Introductions Greg Parsons/ Susan Trolier-McKinstry

#### 9:00 AM – 12:15 PM SESSION I (Oak Forest A)

9:00 – 9:20 I-1 Determining Relationship between Burn-in Conditions and Wear-out in BME X7R MLCCs **CDP\_2022\_3** (Randall) Pedram Yousefian (Penn State)

9:20 – 9:25 **Q&A for I-1**

9:25 – 9:45 I-2 Moisture Degradation **CDP\_2021\_2** (E. Dickey/Irving) John McGarrahan (NC State)

9:45 – 9:50 **Q&A for I-2**

9:50 – 10:10 I-3 Defect Kinetics in Lead Free Ferroelectrics **CDP\_2021\_3** (Randall) Zhongming Fan (Penn State)

10:10 – 10:15 **Q&A for I-3**

10:15 – 10:35 Coffee break (Mezzanine)

10:35 – 10:55 I-4 Thermal Characterization **CDP\_2021\_5** (Choi/Trolier-McKinstry) Kyuhwe Kang (Penn State)

10:55 – 11:00 **Q&A for I-4**

11:00 – 11:20 I-5 Acoustic Characterization of Damage in Multilayer Ceramic Capacitors **CDP\_2022\_4** (Arguelles/Trolier-McKinstry) Haley Jones (Penn State)

11:20 – 11:25 **Q&A for I-5**

11:25 – 11:45 I-6 Designing Highly Reliable Dielectrics with Cold Sintering **CDP\_2022\_2** (Randall) Jake DeChiara (Penn State)

11:45 – 11:50 **Q&A for I-6**

11:50 – 12:10 I-7 Through Thickness Variations of Degradation Phenomena in Piezoelectric and Ferroelectric Ceramics **CDP\_2022\_8** (Balke/Jones) Huimin Qiao (NC State)

12:10 – 12:15	<b>Q&amp;A for I-7</b>	
12:15 – 1:30		<i>Lunch (Hannover II &amp; III)</i>
<b>1:30 – 5:00 PM</b>		<b><u>SESSION II (Oak Forest A)</u></b>
1:30 – 1:50	II-1 Advancing Solid State Reaction Science through In-Situ Diffraction and Processing Control <b>CDP_2022_5</b> <i>(Jones/Forrester)</i>	<i>Jacob Jones (NC State)</i>
1:50 – 1:55	<b>Q&amp;A for II-1</b>	
1:55 – 2:15	II-2 Designing Novel Dielectric Composites with High Thermal Conductivity <b>CDP_2021_4</b> <i>(Randall/Foley)</i>	<i>Javier Mena Garcia (Penn State)</i>
2:15 – 2:20	<b>Q&amp;A for II-2</b>	
2:20 – 2:40	II-3 Dielectric Response of Polymers at High Electric Field <b>CDP_2022_7</b> <i>(Lanagan/Meddeb)</i>	<i>Roger Walker (Penn State)</i>
2:40 – 2:45	<b>Q&amp;A for II-3</b>	
2:45 – 3:10		<i>Coffee Break (Mezzanine)</i>
3:10 – 3:30	II-4 Beyond 5G – Electromagnetic Property Characterization at THz Frequencies <b>CDP_2022_6</b> <i>(Lanagan)</i>	<i>Rocio Rodriguez (Penn State)</i>
3:30 – 3:35	<b>Q&amp;A for II-4</b>	
3:35 – 3:55	II-5 Wide-Band Tunable Microwave Absorbing/Shielding Ceramic Composites for High-Temperature Applications	<i>Cheryl Xu (NC State)</i>
3:55 – 4:00	<b>Q&amp;A for II-5</b>	
4:00 – 4:20	II-6 Wet Oxide Thin Film Formation Technology and its Applications	<i>Toshihiro Doi (Mitsubishi Materials Corp)</i>
4:20 – 4:25	<b>Q&amp;A for II-6</b>	
4:25 – 4:55	II-7 Electromechanical Reliability in PiezoMEMS <b>CDP_2021_1</b> <i>(Akkopru-Akgun/Trolier-McKinstry)</i>	<i>Betul Akkopru-Akgun (Penn State)</i>
4:55 – 5:00	<b>Q&amp;A for II-7</b>	
5:00 – 7:00		<b><i>Poster Session/Reception</i></b> <i>(Hannover I)</i>
Evening		<b><i>Dinner on your own</i></b>

**Thursday, June 29, 2023:**

8:00 AM-5:00 PM		Registration (Mezzanine)	
8:00 – 9:20 AM		Breakfast (Regular meeting) (Hannover II)	
8:00 – 9:20 AM		<b>Student/CDP Member Breakfast</b> (Hannover III)	
<b>9:20 – 11:50 AM</b>		<b><u>SESSION III (Oak Forest A)</u></b>	
9:20 – 9:25		Welcome	Greg Parsons
9:25 – 9:45	III-1	Effective Moisture Protection for Bulk and Thin Film Piezoelectric Actuators <b>CDP_2022_1</b> (Trolrier-McKinstry)	Anthony Diaz-Huemme (Penn State)
9:45 – 9:50		<b>Q&amp;A for III-1</b>	
9:50 – 10:10	III-2	Pb and Bi Free, High Permittivity Quasi-linear Dielectrics for Giant Energy Density Capacitors	Clive Randall (Penn State)
10:10 – 10:15		<b>Q&amp;A for III-2</b>	
10:15 – 10:35	III-3	Ferroelectric and Piezoelectric Opportunities <b>CDP_2022_9</b> (Maria)	Jackson Spurling (Penn State)
10:35 – 10:40		<b>Q&amp;A for III-3</b>	
10:40 – 11:00		Coffee break (Mezzanine)	
11:00 – 11:20	III-4	Complex Dielectrics by Atomic Layer Deposition <b>CDP_2022_10</b> (Parsons/Jones)	Nick Carroll (NC State)
11:20 – 11:25		<b>Q&amp;A for III-4</b>	
11:25 – 11:45	III-5	The Price of Science	Jon-Paul Maria (Penn State)
11:45 – 11:50		<b>Q&amp;A for III-5</b>	
11:50		<b><u>CLOSE OF TECHNICAL MEETING</u></b> -----	
11:50 AM – 1:00 PM		Lunch (Regular meeting)	Hannover III
11:50 AM – 1:00 PM		IAB Lunch (CDP member company private lunch meeting)	Hannover II
		<b>Industrial Advisory Board Meeting</b> (Industry Members and CDP Faculty Only)	
1:00 – 3:30 PM		Closed IAB meeting	Governor's Ballroom