ICPT 2022 Program

Monday, September 26

Time	Title	Presenter / Lead Author
5:00 PM	**Registration**	
5:00 PM	**Informal Welcome Gathering**	
7:00 PM	**End of General Session**	

Tuesday, September 27

Time	Title	Presenter / Lead Author
7:00 AM	**Registration**	
7:00 AM	**Breakfast Buffet**	
8:00 AM	**Opening Remarks**	Robert Rhoades & Jeffrey McKinnis (ICPT Co-Chairs)
8:05 AM	**Keynote: Advancements in CMP Over the Years**	Matt Prince (Intel Corp)
	Session A	Session chair:
8:40 AM	**CMP Challenges for Buried Power Rail Integration**	Kevin Vandermissen (IMEC)
9:00 AM	**HVM CMP Process Development for Advanced Direct Bond Interconnect (DBI)**	Catharina Rudolph (Fraunhofer IZM ASSID)
9:20 AM	**Pad Surface Micro-Structure as Driver for Oxide Removal, Case Study for 3D-Printed Polishing Pads**	Aurore Bonnevaialle (ST Microelectronics)
9:40 AM	**A Hybrid Chemical Mechanical Planarization (CMP) Model for Time-Dependent, Spatial Material Removal Rate Optimization**	Tom Rothe (Fraunhofer ENAS)
10:00 AM	**Morning Break**	
	Session B	Session chair:
10:20 AM	**Evaluation of Design Dependency in STI-CMP for Layout Diversification**	Conrad Guhl (Fraunhofer IPMS-CNT)
10:40 AM	**Copper Metal Loss in Nanometer Fine Features During Chemical-Mechanical Planarization**	Raghuveer Patlolla (IBM Research)
11:00 AM	**Effect of Brush Cleaning on Post CMP Defects**	Hong Jin Kim (GlobalFoundries)
11:20 AM	**Analysis of Corrosion Inhibitor Effects in Cu CMP Based on AFM Measurements**	Jinhyoung Lee (Sungkyunkwan University)
11:40 AM	**A New Method for Characterizing CMP's Localized Removal Laws Using a Die-Scale Modeling Approach with Measured Surfaces**	Brian Salazar (University of California Berkeley)
12:00 PM	**Lunch**	
	Session C	Session chair:
1:15 PM	**Invited: Novel Applications of Machine Learning and Modelling in CMP Process Control to Minimize CMP Process Marginalities**	John Matovu (OCT ADT)
1:40 PM	**Measuring Large Particle Contaminants in Cerium Oxide CMP Slurries with Total Holographic Characterization**	Fook Chiong Cheong (Spheryx Inc)
2:00 PM	**Development for Molybdenum CMP Slurry**	Shogo Onishi (Fujimi Corp)
2:20 PM	**CMP Slurry for Epoxy Mold Compound in Advanced Packaging**	C. Noda (Showa Denka Materials Co)
2:40 PM	**Future Technology Roadmap for CMP Conditioning Disk**	Yongsik Moon (EHWA Diamond)
3:00 PM	**Afternoon break**	
	Session D	Session chair:
3:20 PM	**CMP Removal Rate and Profile Prediction via Deep Learning-Based Algorithm for Robust Process Design**	Seungjun Lee (Samsung Electronics Co)
3:40 PM	**Visualization of Sub-50nm Particle Detachment from Silica Glass Substrate during Enforcing Megasonic by Evanescent Field**	Yutaka Terayama (Kyushu Institute of Technology)
4:00 PM	**Chemical Mechanical Polishing Mechanism of Silicon Nitride Surface: Effect of Tribochemical Oxidation**	Hitomi Takahashi (Hitachi Ltd)
4:20 PM	**Application of Hydrogen-Reduction to Improve Ceria Slurry Performance on Chemical Mechanical Polishing Process**	Jaewon Lee (Sungkyunkwan University)
4:45 PM	**POSTER SESSION 1 and Reception**	
P1	**Optimization of Within-Die Planarity and Defectivity for Chemical-mechanical Planarization**	Wei-Tsu Tseng (IBM Research)
P2	**Membrane Process Development for Small Particle Removal in CMP Slurry and Post-CMP Cleaning**	SanHyeon Park (Sungkyunkwan University)
P3	**Fabrication and Characterization of Fixed-Nano-Abrasive Polishing Pads using Vertically Aligned Carbon Nanotubes**	Sukkyung Kang (KAIST)
P4	**Nozzle Hardware for Slurry Reduction During CMP**	Anand Iyer (Applied Materials Inc)
P5	**Electrochemical investigations on the corrosion and inhibition during W post-CMP cleaning**	Ranjith Punathil Meethal (Hanyang University)
P6	**Effect of corrosion inhibitors on chemical mechanical planarization of molybdenum**	Chan-Hee Lee (Hanyang University)
P7	**Molybdenum Post-CMP Cleaning Formulation with Good Metal Compatibility**	Pei Huang (DuPont Electronics)
P8	**Wafer edge planarization after wafer bonding**	Andreas Kruger (IHG Microelectronics)
P9	**Characterizing the Tribological, Thermal and Kinetic Attributes of Non-Selective Tungsten "Buff" CMP Slurries in Conjunction with Pads**	Sana Ma (EMD Electronics)
P10	**Development of Eddy Current Sensor for End-point Detection in sub-Micron scale during Cu CMP**	Hyunmo An (Sungkyunkwan University)
P11	**Evaluation of the Strength of Glycerol's Adsorption on Metal Surface by Novel Dynamic LSV System**	Keiji Takashige (Sakamoto Yakuhin Kogyo Co)
P12	**Mechanism of metal ions adsorption on PVA brush during post CMP cleaning**	Jerome Peter (Hanyang University)
P13	**Ti/Cu CMP Process for Better Topography Control in Advanced 3D Packaging**	Seock-Cheul Choi (Hanyang University)
P14	**Tunable "Soft" Cleaning Chemistries for Enhanced Cu Organic Residue Removal**	Abigail Dudek (Lewis University)
P15	**Effect of radial grooved pads on copper chemical mechanical polishing**	Chulwoo Bae (Sungkyunkwan University)
P16	**Unraveling the Slurry/Substrate Interfacial Reaction Mechanism for Wide Band Gap (WBG) Chemical Mechanical Planarization (CMP)**	Kiana Cahue (Lewis University)
P17	**Dynamic Electrochemical Measurement System for Fundamental CMP Study**	Hideaki Nishizawa (Doi Laboratory Inc)
P18	**Low-k Oxide CMP Process Development for Subtractive Metal Interconnect**	Anand Iyer (Applied Materials Inc)
P19	**Nodule contact trajectory analysis of PVA roller brushes on a rotating plate**	Shota Suzuki (Shizuoka University)
P20	**Total Solutions for Silicon Carbide Substrate Polishing**	Yun Lung Ho (Ferro Corp)
P21	**Evaluation of Polishing Performance by CMP Pad with Bi-layered Asperities**	Hyun Jun Ryu (KAIST)
P22	**Methodology Between Theoretical Modeling and Experimental Trials for Depth Filter Media of Micro/Nano Particles in Slurry**	Henry Wang (National Taiwan University)
P23	**The using of a coating thickness gauge to get information about the polishing pad profile**	Andreas Kruger (IHG Microelectronics)
P24	**Thermal Effects of SPM Solution for Polished SiO2 film and Adsorbed Ceria Nano-particles on Single Wafer Cleaning**	Youngki Ahn (Sungkyunkwan University)
6:00 PM	**End of General Session**	

ICPT 2022 Program

Wednesday, September 28

Time	Title	Presenter / Lead Author
7:00 AM	**Breakfast Buffet**	
	Session E: Clarkson University CAMP	Session chair:
8:00 AM	**Clarkson Welcome**	
8:05 AM	**Invited: Technology and Challenges of Chemical Mechanical Planarization**	Jongheun Lim (Intel Corp)
8:30 AM	**Invited: Understanding Molybdenum Films - Challenges for Molybdenum Post CMP Cleaning Formulations**	Daniela White (Entegris Corp)
8:55 AM	**Invited: Challenges and Opportunities for CMP in Future Devices**	Ji-Chul Yang (Ebara Corp)
9:20 AM	**Invited: Pad Designs - to Navigate the Fundamentals of CMP**	Sunghoon Lee (Smart Pad Inc)
9:45 AM	**Morning Break**	
10:00 AM	**Invited: Tribo-Electroanalytical Evaluation of CMP Slurries and Post-CMP Cleaning Solutions**	Dipanker Roy (Clarkson University)
10:25 AM	**Invited: Exploring Chemically Activated p-CMP Cleaning for the Development of "Low Stress" Processes**	Jason Keleher (Lewis University)
10:50 AM	**Invited: The Underlying Reason for High Operating Profit Margin in Semiconductor Industry**	Seiichi Kondo (Showa Denko)
11:15 AM	**Invited:**	Ahmed Busnaina (Northeastern University)
11:40 AM	**ICPT Achievement Awards**	
12:00 PM	**Lunch**	
1:00PM	**Introduction of ICPT 2023**	**Organizing team for ICPT 2023**
	Session F	Session chair:
1:15 PM	**Invited: Study on the Reactive Nano Carbon Fine Particles for SiC-CMP**	Keisuke Suzuki (Kyushu Institute of Technology)
1:40 PM	**Do You Know What Your Retaining Ring and Wafer are Doing?**	Len Borucki (Araca Inc)
2:00 PM	**Advanced SiC CMP for High Volume Manufacturing of Power Devices**	John Givens (Applied Materials Inc)
2:20 PM	**The Effect of Surfactants on Ceria Particle Removal in the Buff Clean Process and NPM Based Cleaning Solution for Post-CMP Cleaning**	Yingjie Wang (Fudan University)
2:40 PM	**Experimental Investigation on Modified Preston Model by Utilizing Stop Polishing Method**	Takumi Sato (Chuo University)
3:00 PM	**Afternoon break**	
	Session G	Session chair:
3:20 PM	**State Estimation of CMP Process Using Model-Based Simulation**	Kodai Hirano (Chuo University)
3:40 PM	**Analytical Approaches to Clarify Mechanism and Improve Performance of Ceria Slurry Clean**	Kan Takeshita (Mitsubishi Chemical Corp)
4:00 PM	**The Investigation of Ceria-PAA Interactions during STI CMP Process Leading to Brush Loading Issues**	Muskan (Hanyang University)
4:20 PM	**Visualization of Slurry Particle Behavior Using Evanescent Field during Chemical Mechanical Polishing**	Michio Uneda (Kanazawa Institute of Technology)
4:45 PM	**POSTER SESSION 2 and Reception**	
P25	**Towards Understanding Smaller Ceria Particles (<10 nm) for SiO2 Removal Rates during Chemical Mechanical Polishing**	Ravitej Venkataswamy (Clarkson University)
P26	**Wafer Bevel Edge Engineering: Edge Cleaning and Bonding Applications**	Salma Bensalem (Ebara Precision Machinery)
P27	**Wafer Planarization: A Front Side Approach**	Chirantha Rodrigo (Applied Materials Inc)
P28	**A Study on Novel Conditioning Method for CMP Pad**	Jangwon Seo (Sungkyunkwan University)
P29	**Chemical Mechanical Planarization for IGBT Trench Gate Array**	Ming Ouyang (CRRC Corp)
P30	**The Mechanical Effect of Soft Pad on Copper Chemical Mechanical Planarization**	Seunghwan Lee (Sungkyunkwan University)
P31	**Slurry Delivery Systems Defining Incoming CMP Slurry Density and Achieving Target Process Concentration Driven by Inline Metrology Unify CMP Engineers**	Karl Urquhart (Diversified Fluid Solutions)
P32	**Study on force analysis for elastomer pad by single diamond tool**	Le Nam Quoc Huy (National Taiwan University)
P33	**Structural Characterization and Manipulation of Porous PVA Brush for High-Efficient Wafer Surface Cleaning**	Somin Shin (KAIST)
P34	**Effect of skin layer of PVA brush on static and dynamic contact area during post CMP cleaning**	Mir Jalal Khan (Hanyang University)
P35	**Non-contact Clean with Megasonic Nozzle for Post CMP Cleaning**	Timothy Thao (Applied Materials Inc)
P36	**Holographic Characterization of KMnO4 based CMP slurries for SiC polishing**	Fook Chiong Cheong (Spheryx Inc)
P37	**A Machine Learning-Based Approach for Quality Control of Chemical Mechanical Planarization Process**	Navnidhi Upadhyay (EMD Electronics)
P38	**Effects of H2O2 and Glycine on WIWNU of TiN Chemical Mechanical Polishing under Weakly Alkaline Conditions**	Yuanshen Cheng (Hebei University of Technology)
P39	**Environmentally benign Cu Chemical Mechanical Planarization slurries aided by amino acids**	Hoang Tran Thi Thuy (Clarkson University)
P40	**Evaluation of Additives for Enhanced Particle Removal from SiC Under Megasonic Conditions**	Mantas Miliauskas (Lewis University)
P41	**Post-CMP Cleaning Formulation with Superior W, Cu, and Co Compatibility**	Peter Sun (DuPont Electronics)
P42	**Wafer bow and impact on CMP**	Brian Zhang (Applied Materials Inc)
P43	**Mechanochemically Enhanced Selective Material Removal during poly-Si CMP by Nanocontact-induced Dissolution**	Eungchul Kim (Sungkyunkwan University)
P44	**Achieving Wide Selectivity Window by Additive Interactions of Ceria Slurry Formulation for Diverse STI Processes**	Yang-Yao Lee (Ferro Corp)
P45	**The material removal and surface generation mechanism in ultra-precision grinding of silicon wafers**	Hongfei Tao (Tsinghua University)
P46	**Chemical Mechanical Planarization (CMP) of thick Cu films for emissive arrays on GaN/InGaN micro-light emitting diodes**	Dongshan Yu (Applied Materials Inc)
P47	**Investigation of W CMP Process for High Planarity**	Seokjun Hong (Samsung Electronics Co)
P48	**Novel CMP Filtration Technology Application for Critical Size Particle Removal**	Chloe Chen (Entegris)
6:00 PM	**Transport to Banquet**	Provided by ICPT
6:30 PM	**CONFERENCE BANQUET**	Portland Spirit
8:30 PM	**Return to Conference Hotel**	Provided by ICPT
9:00 PM	**End of Day**	

ICPT 2022 Program

Thursday, September 29

Time	Title	Presenter / Lead Author
7:00 AM	**Breakfast Buffet**	
8:00 AM	**Keynote: History of CMP at Applied Materials: 1995-Present**	Fritz Redeker (Applied Materials Inc)
	Session H	Session chair:
8:35 AM	**Innovations in Integrated Metology**	Asaf Baran (Nova Ltd)
8:55 AM	**Machine Learning Versus Physics-Based CMP Modeling for Emerging Technologies**	Ruben Ghulghazaryan (Siemens Industry Software)
9:15 AM	**Die-Scale Nanotopography Characterization: New Insight**	Viorel Balan (CEA-Leti)
9:35 AM	**Modeling Edge-Over-Erosion for Advanced CMP Processes**	Davit Piliposyan (Siemens Industry Software)
9:55 AM	**Morning Break**	
	Session I	Session chair:
10:15 AM	**Automatic Analysis of CMP Dishing in Via Arrays from AFM Images**	Jan Langer (Fraunhofer ENAS)
10:35 AM	**Next Generation Particle Detection in CMP Slurries**	Rashid Mavliev (Mavlipa LLC)
10:55 AM	**Critical Feature Size of Polishing Pad and Its Performance**	Mary McGahay (Smart Pad Inc)
11:15 AM	**Effect of Colloidal Silica and Copper Ions on PVA Brush Contamination during Post-Cu CMP Cleaning**	Sanjay Bisht (Hanyang University)
11:35 AM	**Reserve for Late News**	
11:55 AM	**Student Paper Awards**	Robert Rhoades & Jeffrey McKinnis (ICPT Co-Chairs)
12:05 PM	**Closing Remarks**	Robert Rhoades & Jeffrey McKinnis (ICPT Co-Chairs)
12:10 PM	**Box Lunch**	
1:00 PM	**End of General Session**	
1:15 PM	**Optional Winery Tour**	