

## MONDAY, FEBRUARY 24

6:30 PM	Bayshore Foyer	Registration Opens		
5:30 PM	San Jose, Santa Clara	Diversity: Women-In-Tech		
6:30 PM	Gateway Foyer	<b>WELCOME RECEPTION</b>		

## TUESDAY, FEBRUARY 25

8:30 AM	Gateway Foyer	<b>CONTINENTAL BREAKFAST</b>		
	Gateway Ballroom	<b>SESSION 1: KEYNOTES (FLEX + MSTC)</b>		Chair: Michael McCreary, E Ink Corporation
8:10 AM		FLEX & MSTC 2020 Welcome and Introductions	Dave Anderson	SEMI Americas
8:30 AM		Sensors, Mems and FHE: Going Beyond Smart to Realize Imagination	Ajit Manocha	SEMI
9:00 AM		Consumer Applications Driving Smart Mobility Use Cases	Anil Rachakonda	Continental Corporation
9:30 AM		Beyond Flexible Hybrid Electronics: Biodegradable Electronics and Interfacing Bio+Electronics	Antti Vasara	VTT Technical Research Centre of Finland Ltd.
10:30 AM	Exhibit Hall	<b>MORNING BREAK</b>		
	Gateway Ballroom	<b>SESSION 2: KEYNOTES (FLEX + MSTC)</b>		Chair:
11:00 AM		The Art of the Possible	Michael Wiemer	Mojo Vision
11:30 AM		Skin-Inspired Electronics	Zhenan Bao	Stanford University
12:15 PM		Panel Discussion: All Keynotes		
2:00 PM	San Jose, Santa Clara, Carmel, Monterey, Pool foyer	<b>LUNCH</b>		
	Pine	<b>SESSION 3: FHE Applications</b>		Chair: Kei Hyodo, Yuasa System Co. Ltd.
2:25 PM		Flexible Hybrid Electronics for DoD Applications	Benjamin Leever	Air Force Research Laboratory
2:45 PM		Recent Advances Towards an Integrated X-Band Printed Antenna Array	John Rogers	The Boeing Company
3:05 PM		A Wireless Sensing Platform for Every Surface – Boeing's Condition Monitoring Sensor Array	Michael Mitchell	The Boeing Company
3:25 PM		Soft Robotic Systems Using Flexible Control Electronics and Hydraulically Amplified Electrostatic Actuators	Gregory Whiting	University of Colorado Boulder
3:45 PM		Smart Surfaces: Integration of Flexible Electronics with Building Materials	Wei Wu	DuPont
6:00 PM	Exhibit Hall	<b>NETWORKING RECEPTION</b>		
	Fir	<b>SESSION 4: Materials</b>		Chair: Robert Praino, Chasm Advanced Materials Inc.
2:25 PM		All-printed Conformal High-temperature Electronics	Shenqiang Ren	The State University at Buffalo
2:45 PM		Dramatically Lower Soldering Temperatures with Metastable Liquid Metal Particles	Ian Tevis	SAFI-Tech
3:05 PM		Impact of Silver Ink Material Properties on Performance of NFC Antennae Printed on Flexible Substrates	Niveditha Nagarajan	MacDermid Alpha Electronics Solutions

3:25 PM		Advanced Multi-Functional Films for Displays Application	Nizamidin Jappar	Kimoto Tech Inc
6:00 PM	Exhibit Hall	<b>NETWORKING RECEPTION</b>		
	<b>Oak</b>	<b>SESSION 5: Displays &amp; Optoelectronics I</b>		Chair: Michael McCreary, E Ink
2:25 PM		Combining PV & OTFT for Battery-Free, Self-Powered Epaper Systems	Robert Poser	Plastic Logic
2:45 PM		High-performance OTFT Materials and Processes Optimized for the Manufacture of Flexible Displays and Large Area Electronics	Chuck Mulligan	FlexEnable Ltd.
3:05 PM		Advancement of Flexible Electrophoretic Displays	CC Tsai	E Ink Holdings
3:25 PM		Materials for Flexible and Stretchable TFT Technologies	Antonio Facchetti	Flexterra Corp
3:45 PM		Flexible eWriters – From Small to Large Format	Erica Montbach	Kent Displays
6:00 PM	Exhibit Hall	<b>NETWORKING RECEPTION</b>		
<b>WEDNESDAY, FEBRUARY 26</b>				
8:30 AM	Gateway Foyer	<b>CONTINENTAL BREAKFAST</b>		
	<b>Pine</b>	<b>SESSION 6: Power</b>		Chair: Mark Poliks, Binghamton University
8:25 AM		Integration of Flexible Energy Harvesters to Directly Power Thin Film Flexible Displays	Elaine Lee	Lawrence Livermore National Laboratory
8:45 AM		Intelligent Lithium-ion Cells Using In-situ Sensing Technology	Joe Fleming	Coventry University
9:05 AM		Assessment of Flexible Batteries Under Dynamic Folding and Flex-to-Install with Varying C-Rates and Temperatures	Pradeep Lall	Auburn University
9:25 AM		Perpetually Self-Powered Wearable Sensor Networks	Brian Zahnstecher	PowerRox
10:25 AM	Exhibit Hall	<b>MORNING BREAK</b>		
8:30 AM	Gateway Foyer	<b>CONTINENTAL BREAKFAST</b>		
	<b>Fir</b>	<b>SESSION 7: Substrates &amp; Barriers</b>		Chair: Doyle Edwards, Brewer Science
8:25 AM		Stretchable Materials for Hybrid electronics Based on a Novel Thermosetting Polymer System	Takatoshi Abe	Panasonic
8:45 AM		Novel Substrate Manufacturing for Stretchable Printed Electronics	Joey Mead	University of Massachusetts, Lowell
9:05 AM		Embedded Sensing for Harsh Environments	John Olenick	ENrG Incorporated
10:25 AM	Exhibit Hall	<b>MORNING BREAK</b>		
8:30 AM	Gateway Foyer	<b>CONTINENTAL BREAKFAST</b>		
	<b>Oak</b>	<b>SESSION 8: Displays &amp; Optoelectronics II</b>		Chair: Eric Forsythe, Army Research Laboratory
8:25 AM		Display Hot Trends and Market Forecast to 2030	Jennifer Colegrove	Touch Display Research Inc.
8:45 AM		Opportunities and Challenges for Foldable Device	Joonhyuk Cho	exax Inc.
9:05 AM		Advancing Phosphorescent OLED Technology	Michael Hack	Universal Display Corporation
9:25 AM		Seamless Integration of Automotive Displays	Neil Bolding	MacDermid Enthone Industrial Solutions

10:25 AM	Exhibit Hall	<b>MORNING BREAK</b>		
	<b>Pine</b>	<b>SESSION 9: Sensors</b>		Chair: Pavel Dutta, Lumileds
10:50 AM		Low Power Sensors for Trace Detection of Threats in the Vapor Phase	Gregory Otto	University of Rhode Island
11:10 AM		Adding a New Sensing Dimension to Soft Electronics: From the Skin to Below the Skin	Sheng Xu	University of California, San Diego
11:30 AM		Moving Electrochemical Sensing from the Lab to Flexible Platforms	Michael Brothers	UES Inc./711th Human Performance
11:50 AM		Integrating MEMS Devices in FHE	Nathan Pretorius	NextFlex
1:30 PM	San Jose, Santa Clara, Carmel, Monterey, Pool foyer	<b>LUNCH</b>		
	<b>Fir</b>	<b>SESSION 10: Printing Technologies</b>		Chair: Robert Praino, Chasm Advanced Materials Inc.
10:50 AM		Roll-to-Roll Printed Flexible Electronics and Applications	Zheng Cui	Printed Electronics Research Center
11:10 AM		Printing Beyond Color - The Potential of Inkjet Technology in General Manufacturing Environments for Printed Electronics	Reinhard R. Baumann	TU Chemnitz
11:30 AM		Advantages and Challenges of High-Resolution Flexography for Flexible Electronics	Carolyn Ellinger	Eastman Kodak Company
11:50 AM		Versatile Molecular Ink Platforms for Printed Electronics	Xiangyang Liu	National Research Council Canada
1:30 PM	San Jose, Santa Clara, Carmel, Monterey, Pool foyer	<b>LUNCH</b>		
	<b>Oak</b>	<b>SESSION 11: Reliability: Characterization</b>		Chair: Erica Montbach, Kent Displays
10:50 AM		Electrical and Mechanical Characterization of Printed Antennas Under Uniaxial and Biaxial Bending	Yi Zhou	Georgia Institute of Technology
11:10 AM		5 Simulation Study of Organic Thin Film Transistor Configurations for Gas Analytes Sensing	Wudyalew Wondmagegn	The College of New Jersey
11:30 AM		Biaxial Inflation Stretch Test for Printed Electronics	Benjamin Stewart	Georgia Institute of Technology
11:50 AM		Gravure Printing Defect Prediction via Machine Learning	Robert Malakhov	University of New Mexico
1:30 PM	San Jose, Santa Clara, Carmel, Monterey, Pool foyer	<b>LUNCH</b>		
	<b>Pine</b>	<b>SESSION 12: FHE Medical/Wearable Applications</b>		Chair: Stephen Farias, NanoDirect LLC
1:55 PM		Developing Medical Wearables for the U.S. Air Force Aeromedical Market	Jeremy W. Ward	US Air Force Research Laboratory
2:15 PM		Manufacturing of Disposable Wearable Patient Monitoring Devices	Azar Alizadeh	GE Research
2:35 PM		A FlexTrate™ Based High Spatial Resolution Surface Electromyography (sEMG) System	Arsalan Alam	University of California, Los Angeles
2:55 PM		Elastomeric Artificial Extracellular Matrix for Intimately Bio-integrated Soft Bioelectronics	Ahyeon Koh	Binghamton University
3:15 PM		Improved ECG Monitor with Capacitive Coupled Electrodes	Mark Poliks	Binghamton University
4:15 PM	Exhibit Hall	<b>AFTERNOON BREAK</b>		
	<b>Fir</b>	<b>SESSION 13: State of the Art FHE Manufacturing</b>		Chair: Scott Miller, NextFlex
1:45 PM		Welcome and Case Study: Design & Manufacturing of the Flexible Arduino-compatible Microcontroller: Learnings and Challenges, What's Next?	Art Wall	NextFlex

2:00 PM		Design	Sai Avuthu	Jabil
2:15 PM		Materials	John Williams	The Boeing Company
2:30 PM		Print	Enid Kivuti	Sheldahl, A Flex Company
2:45 PM		SMT/Die Attach	Jeffrey Morse	University of Massachusetts, Amherst
3:00 PM		Encapsulation/Over Molding	Weifeng Liu	Flex
3:15 PM		Test/Reliability/Metrology	James Zunino	United States Army CCDC Armaments Center
4:15 PM	Exhibit Hall	<b>AFTERNOON BREAK</b>		
	<b>Oak</b>	<b>SESSION 14: Reliability: Metrology</b>		Chair: Mark Poliks, Binghamton University
1:55 PM		A New Halogen-free, Ultrathin Parylene Barrier Coating for High Reliability and Corrosion Protection of Next-generation and Flexible Electronics	Rakesh Kumar	Specialty Coating Systems, Inc.; IEEE
2:15 PM		Detection of Damages on Flexible Devices	Naotsugu Ando	YUASA SYSTEM
2:35 PM		Reliability in Electronics – Leveraging Future 3D Hybrid Electronics Manufacturing for Harsh Environments	Eric Forsythe	US Army Research Laboratory
2:55 PM		Increasing Reliability of Printed Electronics Using Hyperspectral Metrology	Kalsi Kwan	The Boeing Company
3:15 PM		Relationship between Process Recipe-Print Consistency-Performance for Additively Printed Z-axis Interconnects in Multilayer Circuits	Pradeep Lall	Auburn University
4:15 PM	Exhibit Hall	<b>AFTERNOON BREAK</b>		
	<b>Pine</b>	<b>SESSION 15: Heterogeneous Integration of Flexible Electronics</b>		Chair: Pavel Dutta, Lumileds
4:40 PM		Integration of Ultra-Thin Solid-State Batteries with High Performance Silicon Microelectronics and Sensors	Brian Berland	ITN Energy Systems
5:00 PM		Thin Film Electronics Paves Path to Connect Trillion Objects in Creating the Internet-of-Everything	Prashant Agrawal	imec
5:20 PM		Flexible Manufacturing Bridging Conventional and Printed Electronics	Doug Hackler	American Semiconductor
5:40 PM		Development of Inkjet Printing Biosensor on Flexible and Porous Substrates	Miguel Zea	Institute of Microelectronics of Barcelona
6:00 PM		Integration Techniques for Roll-to-Roll Compatible Fabrication of Flexible Hybrid Electronics	Nagarajan Palavesam	Fraunhofer EMFT & Technische Universität Dresden
6:45 PM	Gateway Foyer	<b>FLEXI Awards STUDENT POSTER AWARDS - Sponsored by FlexEnable</b>		
	<b>Fir</b>	<b>SESSION 16: 3D Printed Electronics: From Devices to Systems</b>		Chair: Chair: Kei Hyodo, Yuasa System Co. Ltd.
4:40 PM		Next Generation 3D Printed Multi-Chip-Modules	Laura Ramu	Parsons
5:00 PM		Forming High Aspect Ratio Bumps Available Bonding at Low Temperature on Fine Pitch Line Wire by Gravure Offset Printing	Douglas Schardt	KOMORI Corporation
5:20 PM		Low Temperature Soldering for Low Temperature PET Substrates for Flexible and Formable 3D Electronics	Rhul Raut	MacDermid Alpha Electronics Solutions
5:40 PM		Next Generation Assembly and Interconnect Materials for Smart Structures and Functional Surfaces	Bawa Singh	MacDermid Alpha Electronics Solutions
6:00 PM		Low Cost Thin Film Schottky for Flexible Electronics Application	Feras Alkhalil	PragmatIC
6:45 PM	Gateway Foyer	<b>FLEXI Awards STUDENT POSTER AWARDS - Sponsored by FlexEnable</b>		
	<b>Oak</b>	<b>SESSION 17: Manufacturing USA</b>		Chair: Eric Forsythe, Army Research Laboratory
4:40 PM		Advanced and Sustainable New Technology and Product Introduction	Melissa Grupen-Shemansky	SEMI

5:00 PM		NextFlex, An Extraordinary Journey into the Future of Next Generation Electronics	Malcolm J. Thompson	NextFlex
5:20 PM		AIM Photonics	Nicholas Usechak	Air Force Research Laboratory
5:40 PM		ARMI BioFabUSA: Manufacturing the Future of Biofabrication	Mary Clare McCorry	ARMI
6:00 PM		Advanced Functional Fibers and Fabrics	Alexander (Sasha) Stolyarov	AFFOA
6:45 PM	Gateway Foyer	<b>FLEXI Awards STUDENT POSTER AWARDS - Sponsored by FlexEnable</b>		

## THURSDAY, FEBRUARY 27

9:00 AM	SEMI HQ - The Valley	<b>CONTINENTAL BREAKFAST</b>		
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### TECH COURSES (FLEX + MSTC)

12:00 PM	Seminar 1	<b>Lab to Fab: A Framework and Case Studies</b>		
		Featuring: Chasm Advanced Materials, DuPont Teijin Films, E Ink, Kent Displays		
12:00 PM	Seminar 2	<b>Applying Artificial Intelligence, Machine Learning, and Deep Learning in Smart Electronics Manufacturing</b>		
		Featuring: Binghamton University		
12:00 PM	Seminar 3	<b>Power Optimization Enables the Deployment of 1T Sensors on Flex</b>		
		Featuring: US Army CCDC-AC, PowerRox, Würth Group		
12:00 PM	Seminar 4	<b>The Rise of Smart Sensor: ML at the Edge</b>		
		Featuring STMicroelectronics		
1:30 PM	SEMI HQ The Valley	<b>LUNCH - FLEX MSTC – Tech Course Networking Luncheon</b>		

## FRIDAY, FEBRUARY 28

11:00 AM	NextFlex HQ	TOUR: NextFlex Technology Hub		
		<b>FLEX + MSTC ADJOURN</b>		