AGENDA

WEDNESDAY MORNING, OCTOBER 23, 2013

8:15 am – 8:20 am   **Welcome on Behalf of Stanford University**
Roger T. Howe, Ph.D., *William E. Ayer Professor, Electrical Engineering, Stanford University*

INTRODUCTION TO TSENSORS AND TSENSOR SYSTEMS

8:20 am – 8:45 am   **Introduction to TSensors: Roadmap to Accelerated Abundance**
Janusz Bryzek, Ph.D., *Vice President Development, MEMS and Sensor Solutions, Fairchild Semiconductor*

8:45 am – 9:10 am   **Overcoming Systems Hurdles for a Trillion Sensor World**
Steven Walsh, Ph.D., *Regents Professor, Anderson School of Management, University of New Mexico*

SESSION 1   **MARKET EVOLUTION ENABLING TSENSORS REVOLUTION**
Chair: Cenk Acar, Ph.D., *Director, MEMS Design, Fairchild Semiconductor*

9:10 am – 9:35 am   **Sensor-based Revolution to Change Redistribution of Global GDP**
Vijay Ullal, *President and COO, Fairchild Semiconductor*

9:35 am – 10:00 am   **The Dawn of the Sensored Consumer**
Julie Ask, *Vice President and Principal Analyst, Forrester Research*

10:00 am – 10:15 am   **Morning Break**

10:15 am – 10:40 am   **Applications and Required Infrastructure to Support a Trillion Sensor Market**
Jean-Christophe Eloy, *Founder, President and CEO, Yole Développement*

10:40 am – 11:05 am   **Just Make It**
Sean Stetson, Ph.D., *TPL - Advanced Technology and Products Group, Motorola Mobility*

11:05 am – 11:30 am   **Japan's Movement Towards a Trillion Sensors**
Susumu Kaminaga, *Executive Senior Adviser & Chairman of the Steering Committee SPP-Technologies Co., Ltd.*

11:30 am – 11:55 am   **Elasticity of Demand: Curse or Trillion Unit Opportunity**
Timothy Davis, Ph.D., *Executive Vice President Chief Technical Officer, Kionix, Inc.*

11:55 am – 12:55 pm   **Lunch**

AGENDA

WEDNESDAY AFTERNOON, OCTOBER 23, 2013

SESSION 2 — **DIGITAL HEALTH / PART I**

Chair: Albert ("Al") P. Pisano, Ph.D., *Professor and Dean, Jacobs School of Engineering at UC San Diego*

12:55 pm – 1:20 pm — **Medicine: A Trillion Sensors that Create Demand for MEMS**

Mehran Mehregany, Ph.D., *Executive VP, Engineering and Chief of Engineering Research, West Wireless Health Institute, Director of Case School of Engineering San Diego Programs at Case Western Reserve University*

1:20 pm – 1:45 pm — **High Volume, Low Cost Sensors That Can – and Should – Get Wet**

Mark Zdeblick, Ph.D., *Co-Founder and Chief Technology Officer, Proteus Digital Health*

1:45 pm – 2:10 pm — **Monitoring Environment to Stay Healthy**

Sywert Brongersma, *Senior Principal Scientist, IMEC*

2:10 pm – 2:25 pm — **Afternoon Break I**

2:25 pm – 2:50 pm — **Sensors for Health and Environmental Measurements: Challenges from Biology and Chemistry**

Holger Becker, Ph.D., *Co-founder and CSO, microfluidic ChipShop GmbH*

2:50 pm – 3:15 pm — **Digital Health by BIGHEART*** (*Bionanoscience for Innovative Global Healthcare Research & Technology)

Luke Lee, Ph.D., *Arnold and Barbara Silverman Distinguished Professor / Co-Director of BSAC, UC Berkeley*

3:15 pm – 3:40 pm — **Stopping the Prescription Cascade with Sensors**

Christopher Salthouse, Ph.D., *Dev and Linda Gupta Professor, Department of Electrical and Computer Engineering, University of Massachusetts , Amherst*

3:40 pm – 3:55 pm — **Afternoon Break II**

SESSION 3 — **DIGITAL HEALTH / PART II**

Chair: Jayna Sheats, Ph.D., *Founder and CTO, Terepac Corporation*

3:55 pm – 4:20 pm — **High Sensitivity Multigas Sensors for Air Quality Monitoring and Breath Analysis**

Edward B. Myers, Ph.D., *Senior Research Scientist, Applied Physics, & Bioengineering, Caltech*

4:20 pm – 4:45 pm — **Revolutionizing Global Healthcare: Digital Health Sensors**

Benjamin Schlatka, *VP of Business Development, Co-founder, MC10*

4:45 pm – 5:10 pm — **Apollo™, A Noninvasive Sensing Platform for Mobile Health, Food and Environment Monitoring, and Lighting/Color Measurement with a Volume Potential More than a Billion Units Per Year**

Bill Choi, *CEO, nanoLambda*

5:10 pm – 5:35 pm — **Spectrometer, the Gyro of 2010s; the Under-forecasted Enabler for Digital Health, CeNSE and Internet of Things**

D.Sc. Aarne Oja, *Programme Director, VTT Technical Research Centre of Finland*

5:35 pm – 6:00 pm — **Enabling High-Volume Wafer-Level Production of Hyperspectral Sensors**

Eric Dy, Ph.D., *North American Account Manager, IMEC*

6:30 pm — **Reception and Dinner with Keynote Speaker - Stanford Faculty Club**

Flavio Bonomi, Ph.D., *Cisco Fellow, VP, Advanced Architecture and Research Organization, Cisco Systems*

AGENDA

THURSDAY MORNING, OCTOBER 24, 2013

8:15 am – 8:20 am   **Welcome**

SESSION 4   **SENSORY SWARMS/INTERNET OF THINGS AND EVERYTHING / PART I**
Chair: Kevin Shaw, Ph.D., *Chief Technology Officer, Sensor Platforms*

8:20 am – 8:45 am   **Terra Swarm Visions**
Jan M. Rabaey, Ph.D., *Donald O. Pederson Distinguished Professor, Electrical Engineering and Computer Sciences Department Research Centers, UC Berkeley*

8:45 am – 9:10 am   **A One Trillion Sensor Node Network**
Matthew Hopcroft, Ph.D., *NSF/ASEE Corporate Fellow, Researcher, HP Labs*

9:10 am – 9:35 am   **Emergence of Sensory Swarms for Internet of Things**
Jiri Marek, Ph.D., *Senior Vice President, Corporate Research Centers, Robert Bosch LLC*

9:35 am – 10:00 am   **Electronic Components for Sensor Proliferation**
Ajith Amerasekera, Ph.D., *Engineering Director, TI High Performance Analog Division, Texas Instruments*

10:00 am – 10:15 am   **Morning Break**

10:15 am – 10:40 am   **Wireless Sensor Networks Become Cyber-Physical Systems**
Stephan Guttowski, Dr. Ing., *Head of System Design & Integration Department, Fraunhofer Institute*

10:40 am – 11:05 am   **Smart System Integration Approaches for Monitoring of the Built Infrastructure…**
Smart Transport/Smart Buildings: Technologies and Applications
Roger Grace, *President, Roger Grace Associates*

11:05 am – 11:30 am   **Arrays of Heterogeneous Sensors for Monitoring Large Scale Infrastructures**
Hughes Metras, *Vice President, Strategic Partnerships, CEA-LETI*

11:30 am – 11:55 am   **Why Open Sensor Platforms Will Drive the Trillion Burst**
David Gascón, Ph.D., *Co-Founder and Chief Technical Officer, Libelium*

11:55 am – 12:55 pm   **Lunch**

AGENDA

THURSDAY AFTERNOON, OCTOBER 24, 2013

SESSION 5	**SENSORY SWARMS/INTERNET OF THINGS AND EVERYTHING / PART II** Chair: Sandhiprakash Bhide, Ph.D., *Senior Technologist and Strategist, Intel Corporation*
12:55 pm – 1:20 pm	**Translators Required – Selling the Vision of a Sensing City** Roger Dennis, *Founder & CEO, Sensing City*
1:20 pm – 1:45 pm	**Accelerating Abundance Through Empowerment: A Trillion Sensors at a Time** Martha G. Russell, Ph.D., *Executive Director, MediaX at Stanford University*
1:45 pm – 2:10 pm	**Artificial Flying Insects: Sensor-Actuator Swarms and a Trillion Eyes** Geoffrey L. Barrows, Ph.D., *Founder, Centeye*
2:10 pm – 2:25 pm	**Afternoon Break I**
2:25 pm – 2:50 pm	**Wireless Sensors, a Foundation for Smart Farming Tornado** Bruce Borden, *Co-founder and CEO, gThrive, Inc.*
2:50 pm – 3:15 pm	**Modern Agriculture and its Fast Growing Need for Sensors** James E. Lenz, *Director, John Deere Technology Innovation Center*
3:15 pm – 3:40 pm	**Disposable Sensors: Computational Imaging and Sensing Supports One-Time Use Devices** Patrick R. Gill Ph.D. , *Senior Research Scientist, Rambus Labs*
3:40 pm – 4:05 pm	**Energy Harvesting: An Enabler for a Trillion Sensor Future** Shad Roundy, Ph.D., *Assistant Professor, Department of Mechanical Engineering, University of Utah*
4:05 pm – 4:20 pm	**Afternoon Break II**
SESSION 6	**3D PRINTED SMART SYSTEMS** Chair: Ira Feldman, *Principal Consultant, Feldman Engineering*
4:20 pm – 4:45 pm	**Roll-to-Roll Manufacturing Trillion Sensors** Harri Kopola, Ph.D., *Research Director, Microtechnologies & Electronics, VTT Technical Research Centre, Finland*
4:45 pm – 5:10 pm	**Ubiquitous Micro and Nanofabrication Techniques for Polymer and Carbon MEMS and NEMS** Marc Madou, Ph.D., *Chancellor's Professor, Mechanical & Aerospace Engineering and Biomedical Engineering, UC Irvine*
5:10 pm – 5:35 pm	**Printing Multifunctional Organic and Hybrid Sensor Systems** Uli Lemmer, Ph.D., *Professor for Electrical Engineering, Karlsruhe Institute of Technology*
5:35 pm – 6:00 pm	**Sensor Cluster Technology for the Trillion Sensor Universe; Two Alternatives to Silicon for Two Disparate Markets** Albert ("Al") P. Pisano, Ph.D., *Professor and Dean, Jacobs School of Engineering at UC San Diego*
6:00 pm – 6:25 pm	**Abundant Chemical Sensors and the Trillion Sensor Universe** Joseph R. Stetter, Ph.D., *President/CTO, KWJ Engineering*

AGENDA

FRIDAY MORNING, OCTOBER 25, 2013

8:15 am – 8:20 am	**Welcome**

SESSION 7	**MOBILE AND WEARABLE MARKET**
	Chair: John Huggins, *Executive Director, Berkeley Sensor & Actuator Center, UC Berkeley*
8:20 am – 8:45 am	**How SSI (Smart System Integration) Enables the Trillion-Sensor Universe**
	Roberto DeNuccio, *Business Development Manager, Worldwide MEMS Consumer and Mobile, STMicroelectronics*
8:45 am – 9:10 am	**Today's Smartphones, Yesterday's Vision for Ubiquitous Sensor Networks**
	Shahin Farshchi, Ph.D., *Principal, Lux Capital Management*
9:10 am – 9:35 am	**Challenges with New Technology Adoption in Consumer Market and Lessons Learned from Motion Sensors Success**
	Steve Nasiri, *Founder, CEO, Chairman, Nasiri Ventures LLC*
9:35 am – 10:00 am	**Emerging IOT Usages & Apps for Trillion+ Sensors**
	Sandhiprakash Bhide, *Senior Technologist and Strategist, Intel Corporation*

10:00 am – 10:25 am	**Morning Break**

10:25 am – 10:50 am	**Wearable Body Motion Sensing for Mass Market Applications**
	Job Elders, Ph.D., *Senior VP Strategic Alliances, Xsens*
10:50 am – 11:15 am	**Context Computing, a Critical Game-Changer for the Entire Field of Sensors**
	Kevin Shaw, Ph.D., *Chief Technology Officer, Sensor Platforms*
11:15 am – 11:40 am	**Always-On Activity and Location Systems (@LAS): Foundation of a Brave New World**
	Sandeep Akkaraju, *VP Business Development, Fairchild Semiconductor*
11:40 am – 12:05 pm	**Building Sensors and the Internet of Things**
	Jayna Sheats, Ph.D., *Founder and CTO, Terepac Corporation*

12:05 pm – 1:05 pm	**Lunch**

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FRIDAY AFTERNOON, OCTOBER 25, 2013

RECOMMENDATIONS AND NEXT STEPS
Chair: Janusz Bryzek, Ph. D., *Vice President Development, MEMS and Sensor Solutions, Fairchild Semiconductor*

1:05 pm – 2:15 pm   **Recommendations for TSensors Roadmap Development and Funding**

Ajith Amerasekera, Ph.D.
Engineering Director, TI High Performance Analog division, Texas Instruments

Sandhiprakash Bhide
Senior Technologist and Strategist, Intel Corporation

Janusz Bryzek, Ph. D.
Vice President Development, MEMS and Sensor Solutions, Fairchild Semiconductor

Bill Choi
CEO, nanoLambda

Jean-Christophe Eloy
Founder, President and CEO, Yole Développement

John Huggins
Executive Director, Berkeley Sensor & Actuator Center, UC Berkeley

Albert ("Al") P. Pisano, Ph.D.
Professor and Dean, Jacobs School of Engineering at UC San Diego

Charles Richardson
Director of Roadmapping, iNEMI

Joe Stetter, Ph.D.
President/CTO, KWJ Engineering

Susumu Kaminaga
Executive Senior Adviser & Chairman of the Steering Committee SPP-Technologies Co., Ltd.

Steven Walsh, Ph.D.
Regents Professor, Anderson School of Management, University of New Mexico

Steve Whalley
*Cross Platform Technology Director, Sensors, Platform Engineering Group, Intel
(representing MEMS Industry Group)*

Eileen Yan
China Internet of Things Center

Mark Zdeblick, Ph.D.
Co-Founder and Chief Technology Officer, Proteus Digital Health