INC 2019 Program - April 3rd, 2019

- **IRDS International Focus Team Workshops**

- **IEEE International Conference on Rebooting Computing: "Emerging technology for probabilistic inference" 14:00 - 18:00**

14:00 - 18:00	**ICRC/Session "Emerging technology for probabilistic inference"**		
14:00 - 14:15	Overview	Dr. Arvind Kumar	IBM-US
14:15 - 14:30	Presentation	Marvin Faix Dr. Pierre Bessière	Univ. Grenoble Alpes CNRS
14:30 - 15:00	An optical co-processor for large-scale machine learning based on random features	Pr. Laurent Daudet	Paris Diderot Univ. and CTO & co-founder at LightOn company
15:00 - 15:30	Generating Stochastic Bits using Tunable Quantum Systems	Dr. Enrique Blair	Baylor University
15:30 - 16:00	***Coffee-Break***		
16:00 – 16:30	Memory Centric Artificial Intelligence	Dr. Damien Querlioz	University of Paris-Sud/CNRS
16:30 - 17:00	Asynchronous design for new device development	Dr. Laurent Fesquet	Grenoble INP
17:00 - 17:30	Playing with number representations for energy efficiency: an introduction to approximate computing	Pr. Olivier Sentieys	INRIA, Univ. of Rennes 1
17:30 - 18:00	Stochastic sampling machine for Bayesian inference	Raphael Frisch	University of Grenoble Alpes

- **Panel Session "The next 20 years" 18:00 - 19:30**

18:00 - 19:30	**Panel Session "The next 20 years"**	
18 - 18:20	**IoT**	Prof. Adrian Ionescu – EPFL
18:20 - 18:40	**Architecture**	Kirk Bresniker – IRDS
18:40 - 18:50	***Short Break***	
18:50 - 19:10	**Devices**	Mustafa Badaroglu – IRDS
19: 10 - 19: 30	**Communication**	Timothy Lee – IEEE
19:30 PM	***Welcome Reception Cocktail***	

IRDS International Roadmap for Devices and Systems

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INC 2019 Program - April 4th, 2019

8:00 – 13:00	IRDS International Roadmap for Devices and Systems	
8:00 – 8:05	Regional Greetings	Francis Balestra, Yoshihiro Hayashi, Paolo Gargini
8:05 – 8:20	Overview	Paolo Gargini
8:20 – 8:40	Application Benchmarking	Tom Conte
8:40 – 9:00	System and Architecture	Kirk Bresniker
9:00 – 9:30	More Moore	Mustafa Badaroglu
9:30 – 9:40	Q&A	
9:40 – 10:05	Beyond CMOS and Emerging Research Materials	Shamik Das
10:05 – 10:30	Cryogenic Electronics & Quantum Information Processing	Scott Holmes
10:30 – 10:50	Outside System Connectivity	Michael Garner
10:50 – 11:00	Q&A	
11:00 – 11:10	*Coffee Break*	
11:10 – 11:25	Yield Enhancement	Slava Libman
11:25 – 11:40	Factory Integration	Supika Mashiro
11:40 – 11:55	Lithography	Mark Neisser
11:55 – 12:10	Environment, Health, Safety and Sustainability	Leo Kenny
12:10 – 12:25	Metrology	George Orji
12:25 – 12:40	Packaging Integration	Dev Gupta
12:40 – 12:50	Q&A	
12:50 – 13:00	Next Steps Discussion	Paolo Gargini

14:00 - 15:15	European NEREID Roadmap Session		
14:00 - 14:25	Overview	Dr. Francis Balestra	GINP-CNRS/ Sinano Institute
14:25 - 14:50	More than Moore - Smart Energy for power applications & Autonomous IOT Systems	Dr. David Holden	CEA-LETI
14:50 - 15:15	A novel approach born inside NEREID Project applied to System Design and Heterogeneous Integration roadmapping	Prof. Danilo De Marchi	Politecnico Di Torino
15:15 - 16:30	**Systems and Devices Roadmap of Japan (SDRJ) Session**		
15:15 - 15:30	Introduction of the System Device Roadmap Committee of Japan (SDRJ), JSAP	Dr. Yoshihiro Hayashi	Chair of SDRJ/Renesas Electronics
15:30 - 16:00	Small to large scale quantum computational systems	Prof. Kae Nemoto	NII/SDRJ
16:00 - 16:30	Terahertz Electronics towards the Post-Moore Era	Dr. Hideyuki Nosaka	NTT Device Technology Laboratories/SDRJ
16:30 – 17:00	*Coffee-Break*		
17:00 - 19:30	**Status and trends in Advanced Nanodevices Session**		
17:00 - 17:30	Small Slope Switches, TFET, FeFET	Prof. Adrian Ionescu	EPFL
17:30 - 18:00	Advanced Simulation of Nanodevices	Prof. Luca Selmi	IUNET- University of Unimore
18:00 - 18:30	2D Nanodevices: Investigating the electronic properties of oxide/MoS_2 interfaces	Prof. Paul Hurley	Tyndall
18:30 - 19:00	Ferroelectric and Ionic Analog Memory	Prof. Alan Seabaugh	University Notre Dame, Indiana
19:00 - 19:30	Ultrafast Spintronics	Prof. Jeff Bokor	University California Berkeley
19:30	*Gala Dinner*		

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INC 2019 Program - April 5th, 2019

8:00 - 19:15	**IEEE International Conference on Rebooting Computing**		
8:00 - 8:15	Opening Remarks	Dr. Arvind Kumar	IBM US
8:15 - 9:00	**Keynote speaker1 - Future Technologies**	**Dr Bill Chappell**	Microsystems Technology Office Director / Defense Advanced Research Projects Agency
ICRC/Session "Neuromorphic computing"			
9:00 - 9:30	Connecting silicon and brain neurons with memristive synapses	Prof. Stefano Vassanelli	University of Padova
9:30 - 10:00	In Situ Learning With Memristive Neural Networks: Supervised, Unsupervised, Reinforcement	Prof. J. Joshua Yang	University of Massachusetts
ICRC/Session "Quantum and probabilistic computing"			
10:00 - 10:30	A CMOS qubit	Dr. Marc Sanquer	INAC
10:30 - 11:00	Harnessing uncertainty in circuits and reasoning with probabilistic AI	Dr. Jean Simatic	CEO of Hawai.tech
11:00 – 11:30	***Coffee-Break***		
ICRC/Session "Optical computing"			
11:30 - 12:00	Nanophotonic devices for quantum information processing	Prof. Dr. Carsten Schuck	University of Münster
12:00 - 12:30	Encoding a robust qubit in photonic integrated circuits	Dr. Pérola Milman	University Paris Diderot, LMPQ, CNRS
12:30 – 13:30	***Lunch***		
13:30 - 14:15	**Keynote speaker 2 - Architecture**	**Prof. Wen-mei Hwu**	University of Illinois
ICRC/Session "Energy efficient computing"			
14:15 - 14:45	Why reversible computing is the only way forward for general digital computing	Dr. Michael Frank	Sandia National Labs
14:45 - 15:15	Engineering Energy Efficient Intelligence	Natesh Ganesh	UMass Amherst
15:15 - 15:45	Deus ex machina: Energy and effectiveness in stimulated implementations of machine learning	Prof. Sandip Tiwari	Cornell University
15:45 – 16:15	***Coffee-Break***		
ICRC/Session "Communications" Beyond 5G			
16:15 - 16:45	International Network Generations Roadmap (INGR)	Dr. Paolo Gargini	IEEE Future Networks
16:45 - 17:15	Challenges of 5G and its Roadmap to 6G	Dr. Gerhard P. Fettweis	TU, Dresden
17:15 - 17:45	Millimeter Wave and Signal Processing	Timothy Lee	IEEE
ICRC/Session "Software"			
17:45 - 18:15	System Software Stack for Memristor-based Accelerators	Dr. Sorin-Cristian Cheran	Hewlett Packard Enterprise
ICRC/Session "Spintronics/Magnonics"			
18:15 - 18:45	Magnon Computing	Dr. Marius Costache	ICN2
18:45 - 19:15	Bio-inspired computing with stochastic nanomagnets	Dr. Alice Mizrahi	CNRS Thalès

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International Nanodevices and Computing Conference

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