



## Agenda Day 1 | Wednesday, February 16, 2022 | **All times PST**

Time	Topic	Speaker
7:15	<b>Zoom Login</b>	
7:30	Opening Remarks	A. H. Edwards, AFRL
7:40	The Reversible Computing Scaling Path: Challenges and Opportunities (Invited)	M. Frank, Sandia National Laboratories
8:10	Cryogenic Reversible and Quantum Computing	E. DeBenedictis, Zettaflops, LLC
8:25	Adiabatic Reversible Computing using CMOS Device (Invited)	G. Snyder, Notre Dame
8:55	Energy Efficient Spintronics-based Computing: from Materials to Devices and Systems (Invited)	J.- P. Wang, University of Minnesota
9:25	<b>East Coast Lunch</b>	
9:55	Spintronic Phenomena for Reversible, Neuromorphic, and Reservoir Computing	J. S. Friedman, The University of Texas at Dallas
10:10	New and Improved: Stochastic Computing 2.0	M. Riedel, University of Minnesota
10:25	COINFLIPS: Roadmap for Computationally Efficient Probabilistic Neural Computing	S. G. Cardwell, Sandia National Laboratories
10:40	Thermodynamic State Machine Network	T. Hylton, UC-San Diego
10:55	<b>Panel I: Probabilistic Computing/Beyond Landauer</b>	
11:20	<b>West Coast Lunch</b>	
12:00	Devices, ASICs & Systems for Machine Intelligence (Invited)	V. Sorger, George Washington University
12:30	(TBA) (Invited)	A. Jones University of Pittsburgh/NSF
1:00	NeuroComputing with Compute-in Memory (Invited)	H.-S. P. Wong, Stanford University
1:30	Spin-Orbit- and Spin-Valley-Tronic Structures for Highly Efficient Devices	K.-W. Kim, North Carolina State University
2:00	<b>Panel II: Novel Hardware and Algorithms</b>	
2:30	<b>END OF DAY</b>	



**Agenda Day 2 | Thursday, February 17, 2022 | All times PST**

Time	Topic	Speaker
7:15	<b>Zoom Login</b>	
7:30	Announcements	A. H. Edwards, AFRL
7:40	On Solving Hard Optimization Problems in an Energy Efficient Way (Keynote)	N. Srinivasa, Intel Corporation
8:15	Extremely low-energy 2D Memristors for Analog Computing and Communication (Invited)	D. Akinwande, UT Austin
8:45	Energy Efficient Deep Neural Network Processing: Digital CMOS Limits and prospects for Analog In-Memory Computing	M. Marinella, Sandia National Laboratories/Arizona State University
9:00	Vector-Matrix Multiplication Engine for Neuromorphic Computation with a CBRAM Crossbar Array (Poster)	B. Tolleson, Arizona State University
9:10	A Framework to Enable Top-Down Co-Design of Neuromorphic Systems for Real-World Applications	C. Schuman, University of Tennessee Knoxville
9:25	<b>East Coast Lunch</b>	
9:55	<b>Panel III: Neuromorphic Computing</b>	
10:25	Understanding Neural Computation from Nature's Perspective (Invited)	W. (Chip) Levy, University of Virginia
10:55	Insect-inspired Architectures for Computing at the Edge: A Pathway to on-chip, Continual Learning and Computing under Extreme Environments	A. Yangyas-Gil, Argonne National Laboratory
11:25	Energy-efficient Neuromorphic Computing in Light of the Structural and Functional Evolution of Multi-scale Insect Brains	B. Smith, Arizona State University
11:40	<b>West Coast Lunch</b>	
12:10	Neuro-Inspired Architectures for Continual Learning at the Edge: The What, How, and Why? (Invited)	D. Kudithipudi, San Antonio
12:40	Information Processing on Non-von Neumann Devices	K. Henke, Los Alamos National Laboratory
12:45	Neuroscience-Inspired Approaches to Low-Power Computing	F. S. Chance, Sandia National Laboratories
1:10	Will Intelligent Robots Need to Sleep?	G. Kenyon, Los Alamos National Laboratory
1:40	Evolving Energy Efficient Metamaterials and Biological Robots	J. Bongard, University of Vermont

2:10	Panel IV: Neuroscience
2:40	END OF DAY



**2022 Energy Consequences of Information Workshop**  
 ← Andrew Pineda (AFRL/AFOSR/Dept. of Energy) | February 16-18, 2022 | Virtual

**Agenda Day3 | Friday, February 18, 2022 | All times PST**

Time	Topic	Speaker
7:15	Zoom Login	
7:30	Announcements	A. H. Edwards, AFRL
7:40	Securing Edge-to-Center Computing with Trustworthy Data Domains (Invited)	S. Peisert, UC Berkeley
8:10	PoPCorNS-Pro: A Cooperative Network-Server Approach for Data Center Energy Optimization	S. S. Dayapule, George Washington University
8:25	SpinSmart: Exploring Optimal Server Fan Speeds to Improve Data Center Cooling Costs(Poster)	M. Tian, George Washington University
8:35	5G & Beyond Deployments – Optimizing Energy Efficiency & Mitigating Risks of Utility-GridInstabilities	B. Zahnstecher, IEEE
8:50	5G enabled Grid Edge Computing for Inverter-based Resources Asset Management andResilient Energy Production	X. Fan, Pacific Northwest National Laboratory
9:05	Industrial Process Modelling and Optimization for Energy Saving	G. Qu, Oakland University (MI)
9:20	Dynamic Graph Encoding on Multivariate Time-series Data (Poster)	H. Huang, GE Global Research
9:30	East Coast Lunch	
10:00	Panel V: Large Scale Applications	
Government Presentations		
10:30	A. H. Edwards (AFRL/RV)	
10:40	R. Pino (DOE)	

<b>10:15</b>	C. Li (AFOSR)	
<b>11:00</b>	Q. Wu (AFRL/RI)	
<b>11:10</b>	<b>West Coast Lunch</b>	
<b>11:40</b>	Breakout Sessions	
<b>12:45</b>	Build Breakout Summaries	
<b>1:00</b>	Breakout Session Summaries	
<b>2:05</b>	Workshop Summary	
<b>2:15</b>	<b>MEETING ADJOURN</b>	