**Tuesday, May 13**

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| 7:30 | Breakfast & Registration | |
| 8:10 | Welcome & Introductions | |
| Chair: | Kerem Camsari | |
| 8:30 | Masoud Mohseni | Towards heterogeneous quantum-probabilistic supercomputing |
| 8:55 | Natalia Berloff | Efficient Encoding for Ising Hamiltonian minimization |
| 9:20 | Flaviano Morone | Solving combinatorial optimization problems through stochastic Landau-Lifshitz-Gilbert dynamical systems |
| 9:45 | Giacomo Pedretti | HW/SW codesign of heuristics and in-memory accelerator for solving SAT problems in the native space |
| 10:00 | Rutger Berns | Predicting sampling advantage of Ising Machines for quantum simulations |
| 10:15 | Seokmin Hong | Trade-offs in Network Complexity of Ising Machines |
| 10:30 | Coffee Break | |
| Chair: | Pedram Khalili | |
| 10:55 | Supriyo Datta | Can p-Bits be useful for feedforward neural networks? |
| 11:20 | Hyunsoo Yang | Computing with magnetic tunnel junctions |
| 11:45 | Shun Kanai | Designs of the stochastic magnetic tunnel junctions for spintronics- based probabilistic computing |
| 12:10 | Lunch | |
| Chair: | Natalia Berloff | |
| 13:30 | Eli Yablonovitch | Circuits That Solve Optimization Problems by Exploiting Physics Inequalities |
| 13:55 | Zoltan Toroczkai | Accelerating continuous-time solvers for hard optimization via many-body interactions |
| 14:20 | Maxwell Aifer | Thermodynamic Bayesian inference |
| 14:35 | Nikhat Khan | A Hybrid Approach Integrating Dynamical Systems into a Probabilistic Framework for Solving Large Scale Combinatorial Optimization |
| 14:50 | Davide Pierangeli | Ising machine based on nonlinear polarization oscillators |
| 15:05 | POSTER Session & Coffee | |
| Chair: | Eleonora Raimondo | |
| 16:00 | Arthur Montanari | Designing disordered oscillator Ising machines for global optimization |
| 16:15 | Atiyeh Abbasi Jalal | CMOS-Compatible MOSFET-based Voltage-Controlled Oscillator Network for Low-Power Ising Machine |
| 16:30 | Ali Bazzi | Reconfigurable ring oscillator-based Ising networks in 22nm CMOS: investigating design space trade-offs |
| 16:45 | Biman Chattopadhyay | Integrated photonics and electronics chip-based Ising machine with analog feedback loop for high speed and low power application |
| 17:00 | Toon Sevenants | Implementing a spatially multiplexed analog Ising machine with a spatial light modulator |
| 17:15 | Shu Zhou | Phase analysis of Ising machines and their implications on optimization |
| 17:30 | Conference Photo & Walk to Reception | |
| 18:00 | Conference Reception (Le Tour – 625 Davis Street, Evanston) | |

**Wednesday, May 14**

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|---|---|---|
| 7:30 | Breakfast & Registration | |
| 8:10 | Announcements | |
| Chair: | Damien Querlioz | |
| 8:15 | Masanao Yamaoka | Outline and present development status of CMOS annealing |
| 8:40 | Nikhil Shukla | Navigating the journey from analog oscillator dynamics to efficient combinatorial optimization solvers |
| 9:05 | Giovanni Finocchio | GPU-accelerated Ising Machines |
| 9:30 | Christian Duffee | Probabilistic computing with extended variables in a CMOS integrated circuit |
| 9:45 | Andrea Grimaldi | Analysis of constrained parallel tempering for circle neighborhood travelling salesman problem instances |
| 10:00 | Elisabetta Valiante | A Guide on Benchmarking Advanced Hardware for Solving Optimization Problems |
| 10:15 | Nihal Sanjay Singh | Probabilistic Bits for Generative AI: Case Study with Diffusion Models |

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| 10:30 | Coffee Break | |
| Chair: | Johan Akerman | |
| 10:55 | Hayato Goto | Development of simulated bifurcation algorithm |
| 11:20 | Peter McMahon | Spatially multiplexed photonic Ising solving with ultra-low optical energy |
| 11:45 | Yuan Gao | 50,000-Spin Count Integrated Photonic Chip Ising Solver |
| 12:00 | Kyungduk Kim | Accelerating a coherent Ising machine by XY-Ising spin transition |
| 12:15 | Liam Quinn | Experimental and numerical demonstration of an alternating, intensity-resolved, coherent Ising machine |
| 12:30 | Lunch | |
| Chair: | Giovanni Finocchio | |
| 13:45 | John Paul Strachan | Energy landscapes of Ising machines and hardware proposals for higher-order solvers |
| 14:10 | Dmitri Strukov | Unified Framework for Efficient High-Order Ising Machine Hardware Implementations |
| 14:35 | Stefan Boettcher | Vectorized implementation of the extremal optimization heuristic |
| 14:50 | Simon Arnold | Continuous probabilistic computing with multi-state energy models: a comparative application study of Ising, Potts and XY models |
| 15:05 | Bjarke Frederiksen | Comparative study of Potts machine dynamics and performance |
| 15:20 | Sudeera Gunathilaka | Coherent Ising machines with chaotic amplitude control: extension to quadratic unconstraint binary optimisation and heuristic models |
| 15:35 | Coffee Break | |
| Chair: | Flaviano Morone | |
| 16:00 | Eleonora Raimondo | Disruptive Annealing Process for Probabilistic Ising Machine and Hybrid Ising Machine Exploration |
| 16:15 | Navid Anjum Aadit | Towards Extreme Scaling of Ising Machines with Distributed p-Computers |
| 16:30 | Takuya Okuyama | Relaxed Momentum Annealing with Alternating Direction Method of Multiplier |
| 16:45 | Aditya Shukla | Relaxed dynamical Ising machine on FPGA |
| 17:00 | Xiangyi Zhang | Distributed framework to accelerate in-memory computing solvers: an application for the SAT problem |
| 17:15 | Saavan Patel | Parallel Probabilistic Ising Architectures: Large scale digital Ising Machines for Optimization |
| 18:30 | Conference Dinner (The Barn – 1016 Church Street Rear, Evanston) | |

**Thursday, May 15**

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|---|---|---|
| 7:30 | Breakfast & Registration | |
| 8:30 | Announcements | |
| Chair: | Hyunsoo Yang | |
| 8:35 | Johan Akerman | Ising machines based on spintronic nano-oscillators, spin waves, and acoustic waves |
| 9:00 | Roman Khymyn / Artem Litvinenko | Towards a large-scale 500-spin bulk-acoustic-wave Ising machine |
| 9:15 | Nuno Cacoilo | Ultra-small perpendicular superparamagnetic tunnel junctions |
| 9:30 | Jordan Athas | Impact of random bitstream quality on probabilistic Ising machines using CMOS and voltage-controlled magnetic tunnel junctions |
| 9:45 | Jae-Chun Jeon | Programmable true random number generation from electrically readable nanoscopic racetracks |
| 10:00 | Kinoshita Takuma | Dynamics of Stochastic Magnetic Tunnel Junction with a Synthetic Antiferromagnetic Free Layer for Probabilistic Computing |
| 10:15 | Shiva Konakanchi | Electrically tuneable picosecond-scale chiral magnetic fluctuations: towards novel and robust probabilistic bits |
| 10:30 | Coffee Break | |
| Chair: | Nikhil Shukla | |
| 11:00 | Damien Querlioz | Memristor-based Ising machines: opportunities and trade-offs |
| 11:25 | Michael Huang | Scalability of dynamical system solvers: challenges and opportunities |
| 11:50 | Warren Gross | Stochastic Computing for Fast and Scalable Ising Machines |
| 12:15 | Lunch | |
| Chair: | Andrea Grimaldi | |

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| 13:30 | Suyoun Lee | Stochastic artificial neuron based on Ovonic Threshold Switch (OTS) and its applications for Restricted Boltzmann Machine (RBM) |
| 13:45 | Yuyao Kong | Digital compute-in-memory Ising annealer with ferroelectric capacitor-based nvSRAM for travelling salesman problem |
| 14:00 | Kenneth Zick | Revealing two new best solutions for large Gset problems and the promise of hardware-friendly heuristic solvers |
| 14:15 | Robbe De Prins | How to deal with external fields in Ising machines that use analog spins |
| 14:30 | Fabian Böhm / Giacomo Pedretti | Accelerating XORSAT problems natively with in-memory computing for applications in cryptography and telecommunication |
| 14:45 | Closing Panel & Remarks | |

**Posters, May 13**

**POSTER Session - May 13, 15:00**

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| P-1 | William Rogers | Use of stray fields in a 2D square nanomagnet lattice for correlation and spectral engineering of random binary matrix generators |
| P-2 | Haruna Kaneko | Impact of the Statistical Properties of Stochastic Magnetic Tunnel Junctions-based Random Telegraph Noises on Probabilistic Computing Performance |
| P-3 | Sam Reifenstein | Fine Tuning Annealing Schedules with Reinforcement Learning |
| P-4 | Biman Chattopadhyay | 20000 variable all-to-all connected Ising machine with gain-dissipative feedback and amplitude control |
| P-5 | Guy Verschaffelt | Examining the impact of spin amplitude resolution on the performance of analog Ising machines |
| P-6 | Jacob Lamers | Analysing classical adiabatic annealing with continuation techniques |
| P-7 | Alex Gower | How to train an Oscillator Ising Machine using Equilibrium Propagation |
| P-8 | Moslem Noori | Experiment design for reliable evaluation of probabilistic optimizers |
| P-9 | Filip Sabo | Improving the classification accuracy of Oscillatory Neural Networks with the help of Max-Cut |
| P-10 | Jennifer Volk | The potential of flux quantum electronics for scaling Ising machines |
| P-11 | Thomas Pluck | Swarm digital ising machines |
| P-12 | Hanu Arava | The Role of Intermediate States in Artificial Spin Ice Inspired Computation |
| P-13 | Sai Sakunthala Guddanti | Passenger reallocation in alternate flights using quantum optimization |
| P-14 | Hasantha Ekanayake | Engineering stability in dynamical systems models to improve Ising Hamiltonian solutions |
| P-15 | Zezhi Wu | Ultra-low power and tuneable Ising machine built with tunnel diode- based Fitzhugh-Nagumo oscillators |
| P-16 | Ragib Ahsan | Ultralow-power in-sensor neuronal computing in frequency domain with oscillatory retinal neurons |
| P-17 | Ruqi Shi | Symmetry-breaking in coupled microrings: enabling on-chip photonic Ising spin realization |