A1: *Computational Discovery and Design of Novel Materials I* Room: 260

A1.7 Kondor, Risi: TBD - Computational Discovery and Design of Novel Materials. 9:12AM

A5: *Tracking, Localization and Inference: Methods and Applications* Room: 264

A5.1 Calderon, Christopher: Leveraging Time Series Analysis and Machine Learning to Quantify Intra and Inter Trajectory Heterogeneity in Particle Tracking Experiments. 8:00AM

A5.4 Darzacq, Xavier: Single molecule transcription factor dynamics in the syncytial Drosophila embryo. 9:00AM

A5.7 Fei, Jingyi: Determination of in vivo regulation kinetics of small non-coding RNA in bacteria. 10:00AM

A7: *Computational Physics at the Petascale and Beyond I* Room: 266

A7.4 Marzari, Nicola: Here and now: the intersection of computational science, quantum-mechanical simulations, and materials science.. 8:36AM

A9: *Symposium Honoring Ed Kramer - Mechanics and Dynamics* Room: 268

A9.1 Fredrickson, Glenn: Chasing Extreme Polymer Morphologies with Ed. 8:00AM

A13: *Non-Equilibrium Physics with Ultracold Atoms I* Room: 272

A13.1 Grimm, Rudolf: Ultrafast many-body interferometry of impurities coupled to a Fermi sea. 8:00AM

A14: *Jamming of Particulate Matter I* Room: 273

A14.1 Corwin, Eric: Standing on the shores of jamming: Structure and local rigidity in packings below the jamming transition.. 8:00AM

A16: *New Mesophase Symmetries and Topologies in Self-Assembled Soft Matter* Room: 275

A16.1 Bates, Frank: Formation of Low Symmetry Ordered Phases in Block Polymer Melts. 8:00AM

A19: Near Term Applications of Small-scale Quantum Computing Room: 278-279

A19.1 Martinis, John: Quantum Supremacy: Checking A Quantum Computer With A Classical Supercomputer. 8:00AM

A19.3 Aspuru-Guzik, Alan: Quantum Machine Learning and Quantum Computing for Chemistry. 8:48AM

A19.4 Farhi, Eddie: Quantum supremacy through the quantum approximate optimization algorithm. 9:24AM

A19.5 Boixo, Sergio: Characterizing Beyond-Classical Computation in Near-Term Devices. 10:00AM

A21: Polymer Physics - From Academia to Industry and Back Room: 281-282

A21.2 Brant, Patrick: Comb Block Polyolefins. 8:12AM

A21.3 Alamo, Rufina: Understanding Melt-Memory of Commercial Polyolefins. 8:48AM

A21.4 Meth, Jeffrey: Applications of Polymer Nanocomposites. 9:24AM

A22: Nano-scale Perspectives on Phase Transitions in Correlated Oxides Room: NOT A

A22.3 McLeod, Alexander: Nanotextured phase coexistence in the correlated insulator V_2O_3. 8:24AM

A22.5 Carlson, Erica: Spatial complexity in correlated electronic systems. 9:12AM

A23: Novel Phenomena and Routes to Realizations of Weyl and Dirac Semimetals Room: NOT B

A23.2 Inoue, Hiroyuki: Detecting surface-bulk connectivity in Weyl semimetal TaAs via scanning tunneling microscopy. 8:12AM

A23.3 Kane, Charles: Symmetry Protected Topological Insulators and Semimetals. 8:48AM

A23.4 Kee, Hae-Young: Topological crystalline semimetal in Iridates with strong spin-orbit coupling. 9:24AM

A24: Superconducting and Quantum Metamaterials Room: NOT C

A24.1 Anlage, Steven: Emergent and Nonlinear Properties of Macroscopic Quantum Metamaterials. 8:00AM

A24.2 Kawabata, Shiro: Nonlinear electromagnetic response of superconducting quantum metamaterials. 8:36AM

A25: *Advances in Molecular Dynamics Simulations: From Atomistic to Coarse Grained Models-I* Room: 288

A25.4 Bolhuis, Peter: Multiscale simulations of patchy particle systems combining Molecular Dynamics, Path Sampling and Green's Function Reaction Dynamics. 8:36AM

A26: *Chemical Physics of Hydrogen Bonding I* Room: 289

A26.1 Markland, Thomas: Unravelling the structure and dynamics of concentrated aqueous proton defects using simulations incorporating both nuclear and electronic quantum effects.. 8:00AM

A26.3 Bowman, Joel: Theoretical and Computational Studies of the IR Spectra of Small Water and Protonated Water Clusters. 8:48AM

A29: Optical Frequency Combs - Generation, Metrology & Applications Room: 292

A29.2 Delfyett, Peter: Coherent Optical Signal Processing using Semiconductor Based Frequency Combs. 8:12AM

A29.4 Bjork, Bryce: A Few Atoms Too Many: Unravelling Molecular Complexities with Frequency Comb Spectroscopy. 9:00AM

A30: *Graphene: Structure, Defects, and Functionalization* Room: 293

A30.1 Gallagher, Patrick: Self-assembly of environmental adsorbates on graphene and other 2D materials. 8:00AM

A31: *Carbon Nanotubes and Related Materials: Transport and Devices* Room: 294

A31.4 Arnold, Michael: Wafer-scale, massively parallel carbon nanotube arrays for realizing field effect transistors with current density exceeding silicon and gallium arsenide. 8:36AM

A32: *Devices from 2D Materials* Room: 295

A32.1 Heinz, Tony: TBD - Devices from 2D Materials: Function, Fabrication and Characterization. 8:00AM

A32.4 Castro Neto, Antonio Helio: 2D Materials: Science and Technology.. 9:00AM

A33: *Excitons in 2D Semiconductors* Room: 296

A33.7 Dery, Hanan: Theory of dynamical screening of excitons in monolayer transition-metal dichalcogenides. 9:12AM

A34: *Hybrid Organic-Inorganic Halide Perovskites II* Room: 297

A34.1 Mitzi, David: Hybrid Organic-Inorganic Perovskites: Structural Diversity and Opportunities for Semiconductor Design. 8:00AM

A40: Invited Session: The Physicist and the Philosopher: Einstein, Bergson, and the Debate That Changed Our Understanding of Time Room: 387

A40.1 Canales, Jimena: Einstein and Time in Physics and Philosophy. 8:00AM

A40.2 bricmont, Jean: Bergson vs. Einstein: is there really a philosopher's time?.. 8:36AM

A40.3 Frank, Adam: About Time. Physics, Philosophy and the Battle Between Albert Einstein and Henri Bergson. 9:12AM

A40.4 Ford, Russell: What If Bergson Won?. 9:48AM

A40.5 Martinez, Alberto: Einstein's Phobia of Philosophy. 10:24AM

A42: *Opto-mechanics and Microwave Mechanical Hybrids* Room: 389

A42.1 Lehnert, Konrad: Quantum transduction with mechanical oscillators. 8:00AM

A43: *Spin Orbit Physics in Oxides I* Room: 390

A43.8 Christianson, A.D.: The Consequences of Spin-Orbit Coupling on the $5d^3$ Electronic Configuration. 9:24AM

A44: *Dirac and Weyl Semimetals: Transport I* Room: 391

A44.2 Analytis, James: Weyl Wiggles: exotic quantum oscillatory phenomena in Weyl and Dirac semi-metals. 8:12AM

A45: *2D Topological Superconductors* Room: 392

A45.1 Ben-Shach, Gilad: Unconventional Electron Pairing and Topological Superconductivity in Proximitized HgTe Quantum Wells. 8:00AM

A46: *Entanglement in Open Quantum Systems* Room: 393

A46.1 Nakamura, Yasunobu: Fluctuation relations and Maxwell's demon in a circuit QED setup. 8:00AM

A48: *Frustrated Magnetism: Kitaev Model* Room: 395

A48.4 Moessner, Roderich: Magnetic Majorana Fermions. 8:36AM

A49: Physics of Collective Cell Migration Room: 396

A49.1 Manning, M. Lisa: How do generalized jamming transitions affect collective migration in confluent tissues?. 8:00AM

A49.3 Camley, Brian: Collective gradient sensing: fundamental bounds, cluster mechanics, and cell-to-cell variability. 8:48AM

B2: *Novel Chemistry under Extreme Conditions* Room: 261

B2.1 Ma, Yanming: Computational Design of Novel Compounds and Room-temperature Superconductors at High Pressure Conditions. 11:15AM

B7: *Computational Physics at the Petascale and Beyond II* Room: 266

B7.1 Clementi, Cecilia: Adaptive sampling strategies with high-throughput molecular dynamics. 11:15AM

B9: *Multimodal Characterization of Soft Materials in Complex Environments I* Room: 268

B9.1 Gomez, Enrique: Recent instrumentation advances offer new opportunities in electron microscopy of polymers. 11:15AM

B10: *Polymer Nanocomposites - Structure and Driven Assembly* Room: 269

B10.4 Kumar, Sanat: Tunable Multiscale Nanoparticle Ordering by Polymer Crystallization. 11:51AM

B11: *Organic Electronics - Fundamentals of Electronic Transport* Room: 270

B11.11 Kmmel, Stephan: Visualizing electron dynamics in organic materials: Charge transport through molecules and angular resolved photoemission. 1:15PM

B19: Progress in Quantum Simulation Room: 278-279

B19.1 Gambetta, Jay: Quantum simulations with noisy quantum computers. 11:15AM

B21: Biopolymer Physics Room: 281-282

B21.2 De Vries, Renko: Polymer brush coatings for DNA: fundamental polymer physics and nanofabrication applications. 11:27AM

B21.4 Korley, LaShanda: Structural Interplay - Tuning Mechanics in Peptide-Polyurea Hybrids. 12:15PM

B22: Quantum Criticality and Novel Phases in f-electron Systems Room: NOT A

B22.1 Gannon, William: Quasi-1D heavy fermion magnet Yb_2Pt_2Pb in Magnetic Field. 11:15AM

B22.2 Gegenwart, Philipp: Quantum criticality in geometrically frustrated heavy-fermion systems. 11:51AM

B22.3 Nica, Emilian Marius: Global phase diagram and quantum criticality of the Ising-anisotropic Kondo lattice. 12:27PM

B22.4 Canfield, Paul: Preserved Entropy, quantum criticality and fragile magnetism. 1:03PM

B23: From Isometry to Reality: Geometric principles, Mechanics, and Morphology of Thin Solid Structures Room: NOT B

B23.1 Damman, Pascal: Patterns through elastic instabilities, from thin sheets to twisted ribbons. 11:15AM

B23.2 Gemmer, John: Isometric immersions and self-similar buckling in elastic sheets.. 11:51AM

B23.3 Moshe, Michael: Geometric charges in theories of elasticity and plasticity. 12:27PM

B23.4 Katifori, Eleni: Gaussian curvature and confinement in thin shells. 1:03PM

B24: From Ballistic to Hydrodynamic Flow in Graphene Room: NOT C

B24.1 Chen, Shaowen: Electron optics with ballistic graphene junctions. 11:15AM

B24.2 Lee, Menyoung: Ballistic miniband conduction in a graphene superlattice. 11:51AM

B24.3 Levitov, Leonid: Higher-Than-Ballistic Conduction in Viscous Electron Fluids. 12:27PM

B24.4 Lee, Hu-Jong: Valley-symmetric quasi-1D transport in ballistic graphene. 1:03PM

B24.5 Kim, Philip: Hydrodynamic transport in graphene near the charge neutrality point. 1:39PM

B25: *Chemical Physics of Multichromophores I* Room: 288

B25.1 Chin, Alex: Tensor network methods for the simulation of open quantum dynamics in multichromophore systems: Application to singlet fission in novel pentacene dimers. 11:15AM

B25.2 Huxter, Vanessa: Ultrafast Nonlinear Frequency Generation in Excitonic Systems and the Dynamics of Novel Photosynthetic Pigment Analogs.. 11:51AM

B26: *Chemical Physics of Hydrogen Bonding II* Room: 289

B26.1 Gaigeot, Marie-Pierre: Water at silica/liquid water interfaces investigated by DFT-MD simulations. 11:15AM

B26.2 Han, Songi: Modulators of heterogeneous protein surface water dynamics. 11:51AM

B26.3 Ben-Amotz, Dor: Enhanced Tetrahedral Order in Hydrophobic Hydration-Shells. 12:27PM

B29: Frontiers in Computational Materials Science Room: 292

B29.1 Ferguson, Andrew: Nonlinear machine learning in soft materials engineering and design. 11:15AM

B29.2 Fernandez Serra, Marivi: Using density functional theory to solve complex problems: from liquid water to dark matter. 11:51AM

B29.3 Lester, Jr, William: Quantum Monte Carlo in Materials Science: Electronic Structure. 12:27PM

B29.4 Carter, Emily: Pushing the Envelope Beyond Standard Density Functional Theory for Simulations of Zero Emission Energy Materials. 1:03PM

B29.5 Aspuru-Guzik, Alan: Machine Learning for Materials and Chemicals Discovery.. 1:39PM

B34: *Thermoelectrics - Sn-Se and Modeling* Room: 297

B34.9 Fornari, Marco: Thermoelectric Materials and Novel Thermoelectric Phenomena. 12:51PM

B38: *Fe-based Superconductors: Nematicity I* Room: 385

B38.1 Degiorgi, L.: Anisotropic optical response in the electronic nematic phase of iron-pnictides. 11:15AM

B38.2 Curro, Nicholas: Nematicity and Spin Fluctuations in the Iron Pnictide Superconductors Studied by NMR. 11:51AM

B40: Jonathan F. Reichert and Barbara Wolff-Reichert Award for Excellence in Advanced Laboratory Instruction Room: 387

B40.2 Eblen-Zayas, Melissa: Redesigning an Advanced Lab Course to Promote Experimental Design. 11:27AM

B40.3 Ayars, Eric: A Flipped Modular Skills-Based Introductory Electronics Course. 12:03PM

B40.4 Kozminski, Joseph: AAPT Lab Recommendations: Past, Present, and Future. 12:39PM

B40.5 Carter, Ashley: Adding Interdisciplinary Exploration to Teaching Laboratories using AFM and Biophysical Samples.. 1:15PM

B42: *Organic Spintronics* Room: 389

B42.7 Malissa, Hans: Spin-dependent electronic processes in organic semiconductors. 12:27PM

B44: *Focus Session Dirac and Weyl Semimetals: ARPES, STM and Theory* Room: 391

B44.1 Fang, Chen: Nonsymmorphic nodal line and nodal point semimetals. 11:15AM

B45: *Topological Materials: Thin Film* Room: 392

B45.1 Medvedev, Sergey A.: TBD - Topological Materials: Synthesis and Characterization. 11:15AM

B46: *Experimental Advances in Semiconducting QC* Room: 393

B46.1 Nichol, John: High-fidelity entangling gate for double-quantum-dot spin qubits. 11:15AM

B47: *Antiferromagnetic Heterostructures and Magnon Drag* Room: 394

B47.4 Flebus, Benedetta: Novel contributions to the magnon drag thermopower in metal spintronics. 11:51AM

B47.7 Chen, Kai: Spin transport in antiferromagnetic heterostructures. 12:51PM

B49: Active Matter: Recent Theoretical Advances Room: 396

B49.2 Chate, Hugues: The world of Vicsek-like models and related experiments. 11:27AM

B49.3 Dunkel, Jorn: Phenomenological higher-order PDE models for active suspensions. 12:03PM

B53: Stress and Strain: Mental Health and Graduate School Room: 287

B53.2 Luiti, Simonetta: TBA. 11:27AM

C4: *Physics of the Cytoskeleton II* Room: 263

C4.4 Gardel, Margaret: Mechanics of Active Matter Constructed from Actomyosin. 3:06PM

C5: *Evolutionary Dynamics of Genomes* Room: 264

C5.1 Koonin, Eugene: Theory of microbial genome evolution. 2:30PM

C5.7 Nimwegen, Erik: How do prokaryotic genomes evolve?. 4:06PM

C6: *Thin Films - Nanocomposites and Block Copolymers* Room: 265

C6.4 Composto, Russell: Self-Assembled Nanorods and Nanoplates in Polymer Nanocomposite Films. 3:06PM

C7: *Computational Physics at the Petascale and Beyond III* Room: 266

C7.4 Lin, Lin: Accelerating large scale Kohn-Sham density functional theory calculations with semi-local functionals and hybrid functionals. 3:06PM

C10: *Polymer Nanocomposites - Dynamics From Segmental to Chain Scale* Room: 269

C10.7 Archer, Lynden: Structure and Dynamics of Polymer/Polymer grafted nanoparticle composite. 3:42PM

C11: *Polymers for Energy Storage and Conversion I* Room: 270

C11.1 Balsara, Nitash: Ohm's Law, Batteries, and the Clean Energy Landscape. 2:30PM

C13: *Non-Equilibrium Physics with Ultracold Atoms II* Room: 272

C13.1 Navon, Nir: Emergence of a Turbulent Cascade in a Quantum Gas. 2:30PM

C14: *Statistical Mechanics of Active Matter* Room: 273

C14.1 Ouellette, Nicholas: A Materials Approach to Collective Behavior. 2:30PM

C15: *Extreme Mechanics of Shells* Room: 274

C15.1 Kosmrlj, Andrej: Statistical mechanics of microscopically thin thermalized shells. 2:30PM

C16: *Focus Sesssion: Mechanical Singularities in Soft Matter II* Room: 275

C16.13 Fineberg, Jay: Friction is Fracture: a new paradigm for the onset of frictional motion. 4:54PM

C18: *Physics of Bio-inspired Materials I* Room: 277

C18.7 Fratzl, Peter: Bio-inspired active materials.. 3:42PM

C19: DMP/GMAG Awards Session Room: 278-279

C19.2 Canfield, Paul: Synthesis as the heart of New Materials Physics. 2:42PM

C19.3 Jariwala, Deep: Mixed Dimensional Van der Waals Heterostructures for Opto-Electronics.. 3:18PM

C21: Flexible and Stretchable Organic Electronics Room: 281-282

C21.1 Loo, Yueh-Lin: Small Molecules for Large-Area Applications. 2:30PM

C21.2 O'Connor, Brendan: Plastic Deformation as a Means to Achieve Stretchable Polymer Semiconductors. 3:06PM

C21.3 Malliaras, George: Interfacing with the Brain using Organic Electronics.. 3:42PM

C21.4 Lipomi, Darren: Molecularly Stretchable Electronics for Energy and Healthcare.. 4:18PM

C21.5 Hyun, Woo Jin: High-Throughput Printing Process for Flexible Electronics. 4:54PM

C22: Floquet Time Crystals Room: NOT A

C22.2 Else, Dominic: Floquet Time Crystals. 2:42PM

C22.3 Monroe, Christopher: Realization of discrete time crystals in a spin chain of trapped ions. 3:18PM

C23: Discoveries on the Spectrum of Fluctuations Responsible for Superconductivity and Normal State Anomalies in Cuprates Room: NOT B

C23.4 Hsieh, David: Evidence of a global inversion-symmetry-broken phase in the pseudogap region of $YBa_2Cu_3O_y$. 3:06PM

C24: Spin-Orbit Coupling at Interfaces: Blessing or Curse for Future Spintronic Devices? Room: NOT C

C24.2 Amin, Vivek: Spin transport at interfaces with spin-orbit coupling. 2:42PM

C24.3 Belashchenko, Kirill: Theory of spin loss at metallic interfaces. 3:18PM

C24.5 Gambardella, Pietro: Spin-Orbit Torques and Magnetoresistance in 5d and 4d Metal Systems. 4:06PM

C25: *Advances in Molecular Dynamics Simulation: From Atomistic to Coarse Grained Models - II* Room: 288

C25.1 Paesani, Francesco: Many-Body Molecular Dynamics: Chemical and Spectroscopic Accuracy from the Gas to the Condensed Phase. 2:30PM

C25.4 Galli, Giulia: First principles molecular dynamics of heterogenous materials. 3:30PM

C25.7 Glotzer, Sharon: Self-assembly and GPU MD – invited talk. 4:30PM

C28: *Dopants and Defects in Semiconductors II: Oxides* Room: 291

C28.1 McCluskey, Matthew: Strange conductivity of strontium titanate. 2:30PM

C29: Mesoscale Structure in Particulate-based Systems Room: 292

C29.1 Clement, Eric: Rheology of active suspensions: from individual to collective effort. 2:30PM

C29.2 Morris, Jeffrey: Stress correlations in the transition region of discontinuously thickening suspension flows. 3:06PM

C29.4 Bassett, Danielle: Evolution of network architecture in a granular material under compression. 3:54PM

C29.5 Dijksman, Joshua: Characterizing Granular Networks Using Topological Metrics. 4:30PM

C31: *Carbon Nanotubes and Related Materials: Physical and Chemical Propertes II* Room: 294

C31.1 Cheng, Hui-ming: TBD - Carbon Nanotubes and Related Materials.. 2:30PM

C32: *2D Atomic Layer Hetero-devices* Room: 295

C32.1 Aharonovich, Igor: TBD - Devices from 2D Materials: Function, Fabrication and Characterization. 2:30PM

C34: *Thermal and Thermoelectric Transport - Theory and Modeling* Room: 297

C34.7 Delaire, Olivier: Phonon Scattering in Thermoelectrics: Thermal Transport, Strong Anharmonicity, and Emergent Quasiparticles. 3:42PM

C37a: *Focus Session: Dielectric and Ferroelectric Oxides I* Room: 383

C37a.1 Lee, Sanghan: Ferroelectric oxide thin films for advanced energy applications. 2:30PM

C40: Pais Prize Session Room: 387

C40.1 Nye, Mary-Jo: Abraham Pais Prize Lecture: Shifting Problems and Boundaries in the History of Modern Physics. 2:30PM

C40.2 Franklin, Allan: Is Seeing Believing? Direct and Indirect Observation in Physics. 3:06PM

C40.4 Nauenberg, Michael: A resolution to the historians disagreement over Planck's introduction of the quantum hypothesis. 3:54PM

C43: *Multiferroic Oxides I* Room: 390

C43.1 Oh, Joosung: Magnon-phonon hybridization and enhanced anharmonicity in noncollinear magnets (Y/Lu)MnO_3. 2:30PM

C47: *Damping and Spin Polarization in Heusler Alloys* Room: 394

C47.1 Mewes, Claudia: Damping in Materials for Spintronic Applications. 2:30PM

C49: Reinforced (By) Water Room: 396

C49.3 Hayward, Ryan: Shape morphing and motion of responsive hydrogel composites. 2:54PM

C50: *Low-D and Molecular Magnetism II* Room: 397

C50.7 Mourigal, Martin: Continuous excitations of the triangular-lattice quantum spin liquid candidate $YbMgGaO_4$. 3:42PM

C53: From Physics Girl to the Physics Bus, Creating an Effective Voice for Physics in a Diverse Society Room: 287

C53.1 Fox, Claire: Physics Bus: An Innovative Model for Public Engagement. 2:30PM

C53.2 Cowern, Dianna: Physics Girl: Where Education meets Cat Videos. 3:06PM

C53.3 Falco, Charles: The Art of the Motorcycle and the History of Art (and Condensed Matter Physics). 3:42PM

C53.5 Dreyer-Lude, Melanie: Finding Your Scientific Voice - Theatre Techniques for Physicists. 4:30PM

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E1.1 Cooper, Valentino R.: Soft Functionals for Hard Matter. 8:00AM

E2: *Materials in Extremes II* Room: 261

E2.1 Citroni, Margherita: Dynamics of chemical reactions under pressure. 8:00AM

E4: *Advances in Cellular and Multicellular Imaging* Room: 263

E4.1 Kural, Comert: Mechanoregulation of clathrin-mediated endocytosis in isolated cells and developing tissues. 8:00AM

E7: *First-Principles Modeling of Excited-State Phenomena I: Methodological Advances* Room: 266

E7.10 Hybertsen, Mark: Connecting Interface Structure to Energy Level Alignment at Aqueous Semiconductor Interfaces. 9:48AM

E9: *Glass Formation and Dynamics in Nanostructured Polymers and Glasses I* Room: 268

E9.7 Angrand, Gabriel: Measuring glassy correlation lengths in ultra-thin polymer films. 9:12AM

E10: *Polymer Nanocomposites Related to Optical and Plasmonic Properties* Room: 269

E10.10 Kotov, Nicholas: Self-Assembly of Nanoparticles and Origin of Life. 9:48AM

E14: *Symmetries, Spatiotemporal Patterns and Synchronization* Room: 273

E14.1 Motter, Adilson: Symmetric States Requiring System Asymmetry in Oscillator Networks. 8:00AM

E19: Thermalization and Many-Body Localization in Small Quantum Systems Room: 278-279

E19.1 Kaufman, Adam: Quantum thermalization through entanglement. 8:00AM

E19.2 Neill, Charles: Ergodic dynamics and thermalization in an isolated quantum system. 8:36AM

E19.3 Huse, David: Quantum thermalization and many-body Anderson localization. 9:12AM

E19.4 Luitz, David J.: Anomalous Thermalization. 9:48AM

E19.5 Bordia, Pranjal: Many-Body Localization Through the Lens of Ultracold Atoms. 10:24AM

E21: Polymer Physics Prize Room: HALL I-1

E21.1 Olvera De La Cruz, Monica: Polymer Physics Prize Talk. 8:00AM

E21.2 de Pablo, Juan J.: Emerging Insights into Directed Assembly: Taking Examples from Nature to Design Synthetic Processes. 8:36AM

E21.3 Mirkin, Chad: Programming the Assembly of Unnatural Materials with Nucleic Acids.. 9:12AM

E22: Nematicity and the Valley Degree of Freedom Room: NOT A

E22.1 MacDonald, Allan: Quantum Hall Electron Nematics. 8:00AM

E22.3 Parameswaran, Siddharth: Quantum Hall Valley Nematics: From Field Theories to Microscopic Models. 8:48AM

E22.5 Kuzmenko, Alexey B.: Suppressed magnetic circular dichroism and valley-polarized magnetoabsorption due to the mass anisotopy in Bi. 9:36AM

E23: Majorana States in Topological Superconductors Room: NOT B

E23.2 Morr, Dirk: Design of Majorana Edge States in Topological Superconductors. 8:12AM

E23.3 Nadj-Perge, Stevan: Majorana bound states in atomic structures. 8:48AM

E23.4 Franke, Katharina J.: From single magnetic adatoms on superconductors to coupled spin chains. 9:24AM

E23.5 Neupert, Titus: Shiba lattices as novel platforms for topological superconductivity. 10:00AM

E24: Spin Orbit Torques and Spin Waves Room: NOT C

E24.1 Adeyeye, Adekunle: A reconfigurable waveguide for energy-efficient transmission and local manipulation of information in a nanomagnetic device. 8:00AM

E24.2 Demokritov, Sergej: Excitation of propagating spin waves by pure spin current. 8:36AM

E24.3 Kent, Andrew D.: Magnon Condensates in Spin-Transfer Torque Nanocontacts. 9:12AM

E24.4 Grollier, Julie: Neuromorphic computing with spin-torque nano-oscillators. 9:48AM

E24.5 Akerman, Johan: Long-range mutual synchronization of spin Hall nano-oscillators.. 10:24AM

E25: *Chemical Physics of Multichromophores II* Room: 288

E25.1 Aspuru-Guzik, Alan: Conditional energy transfer: Towards molecular excitonic Gates.. 8:00AM

E25.7 Glowacki, David: Atomistic absorption spectra and non-adiabatic dynamics of the LH2 complex with a GPU-accelerated *ab initio* exciton model. 9:36AM

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E26.2 Johnson, Mark: Cold cluster snapshots of the Grotthuss proton relay mechanism in water. 8:36AM

E29: Jamming of Frictional and Non-spherical Particles Room: 292

E29.2 Bertrand, Thibault: Simulations of Shear Jamming in Packings of Frictionless and Frictional Particles. 8:12AM

E30: *2D Materials: Processing and Application* Room: 293

E30.7 Hersam, Mark: Solution-Based Processing and Applications of Two-Dimensional Heterostructures. 9:12AM

E32: *2D Complex Oxide Devices and Devices at Oxide Interfaces* Room: 295

E32.1 Hwang, Harold: Synthesis and devices of complex oxides in the 2D limit. 8:00AM

E34: *Hybrid Organic-Inorganic Halide Perovskites III* Room: 297

E34.1 Cahen, David: Halide Perovskites: New Science or "only" future Energy Converters?. 8:00AM

E34.2 Palstra, Thomas: Confinement Effects in Corner-, Edge- and Face-sharing Iodine-based Hybrids. 8:36AM

E36: *Advances in Scanned Probe Microscopy I* Room: 299

E36.1 Noad, Hilary: Scanning superconducting quantum interference device measurements of variations in superconducting transition temperature of two-dimensionally doped $SrTiO_3$. 8:00AM

E36.5 Ghahari, Fereshte: An On/Off Berry Phase Switch in Circular Graphene Resonators. 9:12AM

E37a: *Complex Oxide Interfaces and Heterostructures- Stannates, Superconductivity* Room: 383

E37a.4 Jalan, Bharat: Structure, Defects and Electronic Transport in High-Mobility $BaSnO_3$ Films and Heterostructures. 8:36AM

E37a.8 Bozovic, Ivan: What makes high-T_c cuprate superconductors so special?. 9:48AM

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E40.1 Coleman, Piers: Phil Anderson's Magnetic Ideas in Superconductivity. 8:00AM

E40.2 Grant, Paul: The Woodstock of Physics: The Hyped Future Then (1987)... The Actual Situation Now (2017).. 8:36AM

E40.3 Greene, Richard: The Current Experimental Status of the High Tc Problem. 9:12AM

E43: *Spin Orbit Physics in Oxides II* Room: 390

E43.1 Deng, Xiaoyu: Transport properties of correlated metals: A dynamical mean field theory perspective. 8:00AM

E47: *Frontiers in Magnetic Imaging* Room: 394

E47.13 Fuchs, Gregory: Nanoscale magnetic imaging using picosecond thermal gradients. 10:24AM

E49: DBIO Delbruck Award Session Room: 396

E49.1 Höfer, Thomas: Exploiting single-cell variability to infer the dynamics of immune responses. 8:00AM

E49.3 Chakraborty, Arup: How to hit HIV where it hurts. 8:48AM

E51: *Readout in Superconducting Qubits: Parametric and Novel Measurements* Room: 398

E51.1 O'Brien, Kevin: Simultaneous single-shot readout of multi-qubit circuits using a traveling-wave parametric amplifier. 8:00AM

E52: *Semiconductor Qubits: Quantum Dot Readout and Sensing* Room: 399

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F2: ***Materials in Extremes III*** Room: 261

F2.1 Barnes, Brian: Hierarchical Multiscale Simulation: Scale-Bridging for Shock Response of Energetic Materials. 11:15AM

F6: ***The Structure and Dynamics of Confined Biopolymers*** Room: 265

F6.4 Morrison, Greg: Confined wormlike chains in external fields. 11:51AM

F7: ***First-Principles Modeling of Excited-State Phenomena II: Computational Advances*** Room: 266

F7.4 Bruneval, Fabien: Many-body perturbation theory for excited electrons: from materials to molecules. 11:51AM

F8: ***Electrons, Phonons, and Electron Phonon Scattering I*** Room: 267

F8.1 Mauri, Francesco: Anharmonic phonons and second-order phase-transitions by the stochastic self-consistent harmonic approximation. 11:15AM

F9: ***Multimodal Characterization of Soft Materials in Complex Environments II*** Room: 268

F9.1 Doxastakis, Manolis: Three dimensional characterization of polymer nanostructures through an integrated scattering and modeling approach. 11:15AM

F10: ***Ion Containing Polymers - The Role of Structure and Dynamics I*** Room: 269

F10.7 Hickner, Michael: New Polymer Structures for Anion Exchange Membranes. 12:27PM

F12: ***Natural Pattern Formation and Earth's Climate System*** Room: 271

F12.1 Cael, B.B.: The Volume of Earth's Lakes. 11:15AM

F15: ***Population Ecology and Evolutionary Dynamics*** Room: 274

F15.1 Noble, Andrew: Ising universality describes emergent long-range synchronization of coupled ecological oscillators. 11:15AM

F19: DCOMP Metropolis Award Session: Electric Polarization and Novel Routes to Ferroelectricity Room: 278-279

F19.2 Liu, Shi: Multiscale Simulations of Dynamics of Ferroelectric Domains. 11:27AM

F19.3 Garrity, Kevin F.: Theory of hyperferroelectrics. 12:03PM

F19.4 Ghosez, Philippe: Polarization activated by Jahn-Teller distortions in perovskites and vice versa. 12:39PM

F21: Polymer Rheology - Flexibility, Charge and Extensibility Room: 281-282

F21.1 Colby, Ralph: Linear Viscoelasticity of Ionic Polymers: Ionomers and Polyelectrolytes. 11:15AM

F21.4 Larson, Ronald: Configurations and Dynamics of Semi-Flexible Polymers in Good and Poor Solvents. 12:15PM

F21.5 Arratia, Paulo: Flow of Polymeric Solutions: Instabilities & Microstructure. 12:51PM

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F22.1 Lin, Hsin: Topological Materials. 11:15AM

F22.2 Fang, Zhong: Topological Electronics States and Materials. 11:51AM

F22.3 Mao, Zhiqiang: Relativistic Fermions Generated by Square Lattices in Layered Compounds. 12:27PM

F22.4 Li, Qiang: Chiral Magnetic Effect in Condensed Matters. 1:03PM

F22.5 Kaminski, Adam: Electronic properties of new topological quantum materials. 1:39PM

F23: Frontiers of Spectroscopy and Topological Materials: DCMP and IUPAP Prize Sssion Room: NOT B

F23.1 Chang, Cui-Zu: IUPAP C-10 Award Talk: From Topological Insulators to Quantum Anomalous Hall Effect. 11:15AM

F23.2 Felser, Claudia: Weyl and Heusler compounds. 11:51AM

F23.3 Bradlyn, Barry: Algebra, topology, and the solid state: New perspectives on insulators and semimetals. 12:27PM

F23.5 Kevan, Stephen: Surface states, skyrmions, and synchrotrons. 1:15PM

F24: Graphene Spintronics Room: NOT C

F24.3 Casanova, Felix: A two-dimensional spin field-effect switch. 11:39AM

F24.4 Beschoten, Bernd: Graphene: A membrane with steadily improving charge and spin transport properties. 12:15PM

F24.5 Brihuega, Ivan: Atomic-scale control of graphene magnetism by using hydrogen atoms. 12:51PM

F25: *Chemical Physics of Multichromophores III* Room: 288

F25.4 Mitric, Roland: Light-induced nonadiabatic dynamics in molecular assemblies and nanostructures. 11:51AM

F26: *Advances in Molecular Dynamics Simulation: From Atomistic to Coarse Grained Models - III* Room: 289

F26.1 Noe, Frank: Variationally optimal selection of slow coordinates and reaction coordinates in macromolecular systems. 11:15AM

F28: *Dopants and Defects in Semiconductors IV: Nitrides* Room: 291

F28.1 Irmscher, Klaus: Defect related electrical and optical properties of AlN bulk crystals grown by physical vapor transport. 11:15AM

F29: Industrial Physics Forum: Physics in the Industrial World Room: 292

F29.1 McBride, James: Relevant and Rewarding - Strategic Research in Industrial Physics. 11:15AM

F29.3 Dever, Clark: The Reality of Virtual Reality Product Development. 12:03PM

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F30.10 Beton, Peter: 2D Materials: Synthesis, Defects, Structure and Properties. 1:03PM

F31: *Quantum Transport* Room: 294

F31.1 Morpurgo, Alberto: "Designer" spin-orbit interaction in graphene on semiconducting transition metal dichalcogenides. 11:15AM

F31.4 Mishchenko, Artem: Tuning the chirality of Dirac electrons in van der Waals heterostructures. 12:15PM

F32: *Optoelectronic Devices from 2D Materials* Room: 295

F32.1 Barbara, Paola: Nanostructured materials for broadband light detection. 11:15AM

F34: *Thermal Transport* Room: 297

F34.10 Fiete, Gregory A.: Thermal transport in Weyl, double-Weyl, Dirac, and magnetically ordered systems with strong spin-orbit coupling. 1:03PM

F35: *Surface Science of Organic Molecular Solids, Films, and Nanostructures I* Room: 298

F35.7 Andrew, Trisha: Tuning the Optoelectronic Properties of Organic Semiconductor Crystals with Monolayer Graphene Templates. 12:27PM

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F40.2 Nishikawa, Takashi: Prevalence of Asymmetry-Induced Synchronization in Oscillator Networks. 11:27AM

F40.4 Arenas, Alex: Control of coupled oscillator networks with application to microgrid technologies. 12:15PM

F40.5 Kiss, Istvan: Partially synchronized states in small networks of electrochemical oscillators: effect of heterogeneities and network topology. 12:51PM

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F43.1 Dong, Shuai: Ferroelectric control of magnetism in oxide heterostructures. 11:15AM

F44: *Dirac and Weyl Semimetals: STM* Room: 391

F44.1 beidenkopf, haim: Spectroscopic Visualization of Inversion and Time-Reversal Symmetry Breaking Weyl Semi-metals. 11:15AM

F45: *Realization of Kitaev Chain* Room: 392

F45.1 Bakkers, Erik: Kitaev model with quantum dot chains I: Andreev transport. 11:15AM

F46: ***Continuous Measurements and Non-commuting Observables*** Room: 393

F46.1 Hacohen-Gourgy, Shay: Dynamics of simultaneously measured non-commuting observables. 11:15AM

F46.6 Huard, Benjamin: Information and energy transfer via fluorescence in superconducting circuits. 12:39PM

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F47.1 Marrows, Christopher: Spin-orbit interactions in thin magnetic films: from doping and interfaces to transport and skyrmions. 11:15AM

F49: Preparing Physics Students for 21st Century Careers Room: 396

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F49.2 Giri, Sandeep: What the Industry Wants. How Physics Students can Prepare to Thrive in the Private Sector.. 11:51AM

F49.3 Magee-Sauer, Karen: Effective Practices for Training and Inspiring High School Physics Teachers. 12:27PM

F49.5 Hodapp, Theodore: Best Practices in Physics Program Assessment: Should APS Provide Accreditation Standards for Physics?. 1:15PM

F51: ***Parametric and Multimode Interactions in Superconducting Devices*** Room: 398

F51.1 Chakram, Srivatsan: Parametric interactions in multimode cavities. 11:15AM

F53: Biological Materials Self-Assembly Room: 287

F53.2 Grime, John: Coarse-grained models of key self-assembly processes in HIV-1. 11:27AM

F53.4 Doye, Jonathan: Simulations of self-assembling DNA. 12:15PM

F53.5 Grigoryan, Gevorg: Ion transport across the biological membrane by computational protein design. 12:51PM

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H2.1 Gottfried, Jennifer: Laser-shocked energetic materials for laboratory-scale characterization and model validation. 2:30PM

H4: ***Specificity, Recognition and Coding in Biology*** Room: 263

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H4.7 Hermundstad, Ann: The role of disorder in olfactory sensing. 4:06PM

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H14.1 Bodenschatz, Eberhard: Cilia-based transport networks. 2:30PM

H16: ***Physics of Bio-inspired Materials II*** Room: 275

H16.4 Filippidi, Emmanouela: Controlling toughness and dynamics of polymer networks via mussel-inspired dynamical bonds. 3:06PM

H18: ***Function from Geometry: 3D Printing to Programmable Matter I*** Room: 277

H18.1 Aharoni, Hillel: Making Faces: Thin Nematic Elastomer Sheets in Theory and in Practice. 2:30PM

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H19.1 Louie, Steven G.: Excited States and Optical Spectra Based on GW-BSE: Dimensionality and Screening. 2:30PM

H19.2 Kioupakis, Emmanouil: Extreme quantum confinement in nitrides for improved LED efficiency.. 3:06PM

H19.4 Gillet, Yannick: Finding order in disorder: Raman spectroscopy of amorphous silicon, from ab initio to multiscale modeling. 3:54PM

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H21.2 McKinnon, Karen: The signal and the noise: forced and unforced changes in temperature distributions and the probability of extremes. 2:42PM

H21.3 Mann, Michael: Influence of Anthropogenic Climate Change on Planetary Wave Resonance and Extreme Weather Events. 3:18PM

H21.5 Francis, Jennifer: Crazy Weather and the Arctic Meltdown: Emerging Connections. 4:06PM

H22: Spectroscopy of Majorana States in Solids Room: NOT A

H22.1 Kouwenhoven, Leo: Experimental progress on Majoranas in semiconductors. 2:30PM

H22.2 Bocquillon, Erwann: Gapless Andreev bound states in a topological junction on the Quantum Spin Hall insulator HgTe. 3:06PM

H22.3 Jia, Jinfeng: Observation of Majorana fermions in the vortex on topological insulator-superconductor heterostructure $Bi_2Te_3/NbSe_2$. 3:42PM

H22.4 Marcus, Charles: Zero Modes in Single and Double Majorana Islands. 4:18PM

H22.5 Glazman, Leonid: Conductance of a proximitized nanowire in the Coulomb blockade regime. 4:54PM

H23: Stripe and Bubble Phases in a Two-dimensional Electron Gas: Recent Developments Room: NOT B

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H23.2 Mueed, M. A.: Reorientation of the Stripe Phase of 2D Electrons by a Minute Density Modulation. 3:06PM

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H25.3 Matsika, Spiridoula: Insights into the nonadiabatic dynamics of radical cations. 3:18PM

H25.5 Brumer, Paul: Quantum Dynamics of Incoherently Driven Systems. 4:06PM

H29: Role of Measurements and Instrumentation in Advancing Industry and Applied Physics Room: 292

H29.2 Hollenhorst, James: New Measurement Technology Enables the Revolution in the Life Sciences. 2:42PM

H29.4 Colombo, Luigi: Semiconductor Characterization: from Growth to Manufacturing. 3:30PM

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H40.2 Hellman, Frances: Ideality and Tunneling Level Systems (TLS) in amorphous silicon films.. 3:06PM

H40.4 Del Gado, Emanuela: Exploring relaxation pathways in rheology and aging of jammed soft solids. 3:54PM

H40.5 Franz, Silvio: Soft modes in the perceptron model for jamming.. 4:30PM

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H42.1 Lloyd, Seth: Small-scale quantum computers: current state of the art and applications. 2:30PM

H45: *Topological Josephson Junction* Room: 392

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H47: *Spin Seebeck and Spin Nernst Effects* Room: 394

H47.1 Kuschel, Timo: Spin Seebeck, anomalous Nernst, and magnetic proximity effects in non-magnet/magnet heterostructures. 2:30PM

H47.11 Goennenwein, Sebastian: Observation of the Spin Nernst Effect in Platinum. 4:54PM

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K19.3 McDermott, Robert: Hybrid Quantum Information Processing with Superconductors and Neutral Atoms. 9:12AM

K19.4 Lev, Benjamin: A Scanning Quantum Cryogenic Atom Microscope. 9:48AM

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K21.4 Carini, Gabriella: Fast x-ray and electron detectors at SLAC user facilities using CCD and CMOS technology.. 9:00AM

K21.5 Minor, Andrew: New modes of electron microscopy for materials science enabled by fast direct electron detectors. 9:36AM

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K22.1 Hanson, Ronald: The birth of quantum networks: merging remote entanglement with local multi-qubit control. 8:00AM

K22.2 Klimov, Paul: Quantum Control and Entanglement of Spins in Silicon Carbide. 8:36AM

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K23.1 Li, Shiyan: Bulk Fermi surface of charge-neutral excitations in SmB_6 or not: A heat-transport study. 8:00AM

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K24.2 Knolle, Johannes: Majorana spectroscopy of Kitaev spin-liquids. 8:36AM

K24.5 Lemmens, Peter: Fractionalized Excitations in higher dimensional Iridates. 9:36AM

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K29.3 Ala-Nissila, Tapio: Iso-Flux Tension Propagation Theory and It's Application to Driven Polymer Translocation. 9:12AM

K29.4 Bao, Gang: Precision Genome Editing for Treating Single-gene Disorders. 9:48AM

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K40: Designed Polymer Surfaces for Adhesion, Release, Self-Cleaning, Anti-Fouling, and other Applications Room: 387

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L6.8 Bondos, Sarah: Multiple structure-intrinsic disorder interactions regulate and coordinate Hox protein function.. 1:03PM

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L8: *Electrons, Phonons, and Electron Phonon Scattering IV* Room: 267

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L19.3 Landini, Manuele: Quantum phases from competing short- and long-range interactions in an optical lattice. 12:27PM

L19.4 Hemmerich, Andreas: Bosons in a narrow-band optical resonator. 1:03PM

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L21.2 Cao, Guang-Han: Superconductivity and Ferromagnetism in AEuFe4As4 (A = Rb and Cs).. 11:51AM

L21.3 Bud'ko, Sergey L.: Anisotropic physical properties of single phase, single-crystalline $CaKFe_4As_4$. 12:27PM

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L23.5 Flint, Rebecca: Hybridization with a twist: Hidden (hastatic) order in URu_2Si_2. 12:27PM

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L34.8 Cepellotti, Andrea: Emergent phenomena in phonon thermal transport. 1:03PM

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L40.2 Mulvey, Patrick: Career Paths for Physics Degree Recipients. 11:51AM

L40.3 Cherry, Michael: Preparing for a Career at a Research University. 12:27PM

L40.4 Mack, Gregory: Alternate Careers for Physicists: Science Policy and Government Relations. 1:03PM

L40.5 Meisner, Gregory: Preparing for a Career in Industrial Physics.. 1:39PM

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L48.5 Dun, Zhiling: From pyrochlore to the tripod kagome lattice. 12:27PM

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L49.5 Kim, Keun Su: Dirac semimetal state in black phosphorus. 12:03PM

P0: Special Event Kavli Symposium: Quantum Matter and Quantum Information Room: HALL I-1

P0.1 Haldane, F. D. M.: Topological States of Quantum Condensed Matter. 2:30PM

P0.2 Kosterlitz, J Michael: Topological Defects and Phase Transitions. 3:06PM

P0.3 Moler, Kathryn: Currents and Phases in Quantum Rings.. 3:42PM

P0.5 Cleland, Andrew: Hybrid quantum systems: Outsourcing superconducting qubits. 4:30PM

P0.6 Devoret, Michel: Protecting quantum information in superconducting circuits. 5:06PM

P2: *Materials in Extremes VII* Room: 261

P2.1 McMahon, Malcolm: Ultrafast studies of shock-induced melting and phase transitions at LCLS. 2:30PM

P4: *Physics of Polymer Surfaces and Interfaces II* Room: 263

P4.7 APS, Abstract: Bulk & Interfacial Contributions to the Adhesion of Acrylic Emulsion-Based Pressure Sensitive Adhesives. 3:42PM

P5: *Non-equilibrium Dynamics of Neural Circuits* Room: 264

P5.8 Miller, Kenneth: Transient amplification and short term memory in neural circuits. 3:54PM

P6: *Virus Capsid Protein Dynamics* Room: 265

P6.7 de Pablo, Pedro J: Atomic Force Microscopy of virus capsids uncover the interplay between mechanics, structure and function. 3:42PM

P7: *First-Principles Modeling of Excited State Phenomena VI: Semiconductors and Oxides* Room: 266

P7.1 Ismail-Beigi, Sohrab: Implementation of highly parallel and large scale GW calculations within the OpenAtom software. 2:30PM

P10: *Morphology Evolution and Structure-Property Relationship in Multicomponent Curing Systems* Room: 269

P10.1 Hillmyer, Marc: Functional bicontinuous nanostructures by in situ formation of block polymer modified thermosets. 2:30PM

P10.5 Mehta, Rujul: Reaction Induced Phase Separation in Multi-component Epoxy Thermosets for Large Thickness Casting. 3:42PM

P18: *Mechanics and Non-linear Rheology of Soft Gels II* Room: 277

P18.6 Divoux, Thibaut: Nonlinear viscoelasticity and generalized failure criterion for polymer gels. 3:30PM

P21: Soft Tribute to John Cahn Room: 281-282

P21.2 Cabral, Joao: Reconciliation of Cahn-Hilliard predictions for spinodal decomposition lengthscales in polymer blends. 2:42PM

P21.4 Langer, James: Softening and Hardening Mechanisms in Dislocation-Enabled Plasticity. 3:30PM

P21.5 Han, Charles: Small Angle Neutron Scattering Study in Multi-Component Polymer Systems: Spinodal Decomposition and Beyond. 4:06PM

P22: Condensed Matter Research at Global Muon Facilities Room: NOT A

P22.1 Luke, Graeme: Muon Spin Relaxation/Rotation Studies of Novel Magnetic Systems. 2:30PM

P22.2 Morenzoni, Elvezio: Nanoscale investigations of thin films, heterostructures and interfaces with low energy polarized muons.. 3:06PM

P22.4 Mengyan, Rick (P.W.): Role of the Muon in Semiconductor Research. 3:54PM

P22.5 Keren, Amit: Is magnetism relevant to cuprate superconductivity: lanthanides versus charge compensated 123?. 4:30PM

P23: *Novel 2D Semiconductors* Room: NOT B

P23.4 Javey, Ali: 2D Semiconductor Electronics: Advances, Challenges and Opportunities. 3:06PM

P25: *DCP Prize Session* Room: 288

P25.3 Carter, Emily: In the Footsteps of Irving Langmuir: Physical Chemistry in Service of Society. 2:54PM

P28: *Dopants and Defects in Semiconductors VII* Room: 291

P28.1 Janotti, Anderson: Defects and Small Polarons on Oxide Surfaces. 2:30PM

P29: Lab to Product: the Marketplace Room: 292

P29.1 Murphy, John: Funding Innovation from an Industry Perspective. 2:30PM

P29.3 Araujo, Carlos: Physics, Materials, Devices and Chips - A Lab to Product Quest. 3:18PM

P29.4 Dallasasse, John: The Oxide-Confined Vertical-Cavity Surface-Emitting Laser: From Dust to Light. 3:54PM

P31: *Magnetism in 2D Materials II* Room: 294

P31.1 Mandrus, Dave: 2D Magnets. 2:30PM

P34: *Nanoscale Charge Transport* Room: 297

P34.1 Bischak, Connor: Carrier, ion, and phonon mediated phase transitions in mixed halide perovskite nanostructures via low-exposure cathodoluminescence imaging. 2:30PM

P34.8 Nelson, Keith: TBD - Electron, Exciton, and Heat Transport in Nanostructures. 4:18PM

P37a: *Dielectric and Ferroelectric Oxides V* Room: 383

P37a.1 Paillard, Charles: Photostriction in ferroelectric and multiferroic materials from first principles. 2:30PM

P40: Women in Physics: Understanding and Improving the Climate Room: 387

P40.1 Barthelemy, Ramon: Gender discrimination in physics and astronomy: Graduate student experiences of sexism and gender microaggressions. 2:30PM

P40.2 Lim, Gloria: Women in physics: A comparison to science, technology, engineering, and math education over four decades. 3:06PM

P40.3 Mensah, Felicia: Retelling the educational pathways of Black women physicists: Stories of experiencing and overcoming obstacles in life. 3:42PM

P43: *Manganite Films* Room: 390

P43.10 Arenholz, Elke: Heterogeneity in magnetic complex oxides. 4:18PM

P45: *Majorana Nanowire Based Topological Devices* Room: 392

P45.1 Alicea, Jason: New theory insights and experimental opportunities in Majorana wires. 2:30PM

P46: *Implementing Quantum Algorithms in Experimental Systems* Room: 393

P46.1 Barends, Rami: Challenges ahead in implementing digital quantum algorithms. 2:30PM

P46.2 DiCarlo, Leo: An extensible circuit QED architecture for quantum computation. 3:06PM

P47: *Spin Transport and Topology* Room: 394

P47.4 Karel, Julie: Uncovering Berry: The Role of Topology in the Anomalous Hall Effect of Amorphous Ferromagnetic Fe-Si and Antiferromagnetic Mn_3Ge. 3:06PM

P47.8 kondou, kouta: Charge-spin conversion at interfaces with spin splitting. 4:18PM

P48: *Frustrated Magnetism: Quantum Spin Ice* Room: 395

P48.1 Coldea, Radu: Phase diagram and spin dynamics of the frustrated pyrochlore magnet $Yb_2Ti_2O_7$ in applied field. 2:30PM

P48.5 Armitage, N. Peter: Low energy electrodynamics of the quantum spin ice of $Yb_2Ti_2O_7$. 3:42PM

P52: *NV Centers and Spin Ensembles* Room: 399

P52.2 Bienfait, Audrey: Controlling spin relaxation with a cavity. 2:42PM

Special Session Q3: Special Event Public Lecture: The Physics and Materials Science of Superheroes
Room: HALL I-1
Start times after first talk are approximate

Q3.1 Kakalios, James: The Physics and Materials Science of Superheroes. 6:30PM

R2: *Materials in Extremes VIII* Room: 261

R2.1 Belof, Jonathan: Time-dependent freezing of water under shock and ramp loading. 8:00AM

R4: *Physics of Proteins Association and Recognition II* Room: 263

R4.4 Cheung, Margaret: Opposing intermolecular tuning of Ca^{2+} affinity for Calmodulin by its target peptides. 8:36AM

R7: *First-Principles Modeling of Excited State Phenomena VII: Phonons and Electron Dynamics* Room: 266

R7.7 Monserrat, Bartomeu: Electron-phonon coupling from finite displacements: including electron correlation and higher order terms. 9:12AM

R19: Novel Magnetism and Correlated States in Ultracold Atomic Systems Room: 278-279

R19.2 Laburthe-Tolra, Bruno: Quantum magnetism with highly magnetic atoms. 8:12AM

R19.3 Brennecke, Ferdinand: Exploring antiferromagnetic correlations of ultracold atoms in two dimensions. 8:48AM

R19.4 Greiner, Markus: Site-resolved observations of antiferromagnetic correlations in the Hubbard model. 9:24AM

R19.5 Gross, Christian: Exploring quantum magnetism at the single spin and atom level. 10:00AM

R21: Polymer Glasses in Confinement and Deformation Room: 281-282

R21.1 Baschnagel, Jorg: Shear elasticity and shear relaxation in glass-forming polymer melts and films. 8:00AM

R21.5 Caruthers, James: What We Know and Don't Know About the Thermo-mechanical Behavior of Glassy Polymers. 9:12AM

R22: Unification of Topological Insulators and the Half-filled Landau Level Room: NOT A

R22.1 Metlitski, Max: Electric-magnetic duality of topological insulators. 8:00AM

R22.3 Mong, Roger: Dirac composite fermions in the half-filled Landau level. 8:48AM

R23: Charge and Heat Transport at the Nanoscale Room: NOT B

R23.1 Menges, Fabian: Local probing of thermal energy transfer and conversion processes in VO2 nanostructures. 8:00AM

R23.3 Halbertal, Dorri: Nanoscale thermal imaging of dissipation in quantum systems and in encapsulated graphene. 8:48AM

R23.4 Nowack, Katja C.: Imaging currents in two-dimensional quantum materials. 9:24AM

R23.5 Di Ventra, Massimiliano: Functional Theories of Heat and Charge Transport. 10:00AM

R29: Industrial Advances in Computation Room: 292

R29.1 Demkov, Alexander: Modeling for integrated oxide electronics and photonics. 8:00AM

R29.2 Buongiorno Nardelli, Marco: High-throughput materials discovery and development: breakthroughs and challenges in the mapping of the materials genome. 8:36AM

R29.3 Neugebauer, Jorg: Ab initio guided design of structural materials with superior mechanical properties. 9:12AM

R29.4 Fay, Patrick: Novel Heterostructure Devices for Ultra-Scaled Logic. 9:48AM

R30: *Transition Metal Dichalcogenides:Structure and Defects* Room: 293

R30.13 Chhowalla, Manish: Phase Engineered 2D Transition Metal Dichalcogenides for Electronics. 10:24AM

R33: *Advanced Spectroscopy* Room: 296

R33.7 Louie, Steven: TBD - 2D Materials: Semiconductors. 9:12AM

R34: *Nanostructures and Metamaterials* Room: 297

R34.10 Faraon, Andrei: Flat and conformal optics with dielectric metasurfaces. 9:48AM

R38: *Photovoltaics: Thin Film and Nanostructured* Room: 385

R38.10 Leite, Marina: Functional imaging of photovoltaic materials. 9:48AM

R39: *Fe-based Superconductors: Nematicity II* Room: 386

R39.6 Meingast, Christoph: New experimental results concerning the nematic state in Fe-based superconductors. 9:00AM

R39.7 Gallais, Yann: Nematic fluctuations and resonance in iron-based superconductors. 9:36AM

R40: Emerging Technologies and the Future of the Nuclear Arsenals Room: 387

R40.1 Lieber, Keir: The New Era of Counterforce. 8:00AM

R40.2 Grego, Laura: Strategic Missile Defense & Nuclear Deterrence. 8:36AM

R42: *Spins in Semiconductors, Hyperfine and Spin-Orbit Coupling* Room: 389

R42.4 Barnes, Edwin: Prolonging the quantum coherence of semiconductor spins. 8:36AM

R43: *Magnetic Oxide Interfaces* Room: 390

R43.6 Benckiser, Eva: Resonant elastic x-ray scattering studies of magnetism in nickelate heterostructures. 9:00AM

R44: *Dirac and Weyl Semimetals: Optics II* Room: 391

R44.4 Moore, Joel: Linear and nonlinear responses in topological semimetals. 8:36AM

R45: *Exotic Topological Superconductors* Room: 392

R45.1 liu, feng: Topological Edge States in High-Temperature Superconductor FeSe/SrTiO3(001) Film. 8:00AM

R47: *Spin-Orbit Torque III and Chiral Domain Walls* Room: 394

R47.4 Kurebayashi, Hidekazu: Current-induced spin torques in inversion broken materials. 8:36AM

R49: Mechanics in Morphogenesis Room: 396

R49.1 Mani, Madhav: Does the lattice matter? The interplay of tissue mechanics and cell-cell signaling. 8:00AM

R49.2 Boudaoud, Arezki: Beller Lectureship: Stochasticity and robustness in growth and morphogenesis. 8:36AM

R49.4 Mahadevan, L.: Motifs in morphogenesis. 9:24AM

R49.5 Nelson, Celeste: Buckling and folding in lung development. 10:00AM

R50: *Artificial Spin Ice and Honeycomb Structures* Room: 397

R50.6 Fernandez-Pacheco, Amalio: 3D magnetic nanostructures grown by focused electron and ion beam induced deposition. 9:00AM

R51: *Error Correction* Room: 398

R51.1 Kapit, Eliot: Passive Error Correction and Gates for a Very Small Logical Qubit. 8:00AM

R52: *Semiconducting QC: Donor and Dot-Donor Qubits, Rolf Landauer and Charles Bennett Award Session* Room: 399

R52.6 Morello, Andrea: Rolf Landauer and Charles H. Bennett Award Talk: Experimental development of spin qubits in silicon. 9:00AM

S2: *Materials in Extremes IX* Room: 261

S2.1 mazevet, stephane: Ab initio equation of states for planetary and exoplanetary modeling. 11:15AM

S4: *Photoreceptor and Signal Transduction* Room: 263

S4.7 Crane, Brian: Understanding blue-light photoreceptors. 12:27PM

S5: *Machine Learning for Modeling and Control of Biological Systems I* Room: 264

S5.1 Neuert, Gregor: Dynamic control and model inference of signal activated gene regulation. 11:15AM

S7: *Theory and Simulation of Fiber-Based Materials* Room: 266

S7.2 MacKintosh, Fred: Mechanical critical phenomena and the elastic response of fiber networks. 11:27AM

S9: *Tough Hydrogels I* Room: 268

S9.7 Creton, Costantino: Physics and Mechanics of dual-crosslink gels. 12:27PM

S11: *Tuning Polymer Rheology for Printing, Spinning, or Coating Applications* Room: 270

S11.1 Ellison, Chris: A new approach for high performance fiber manufacturing via simultaneous fiber spinning and UV initiated polymerization. 11:15AM

S13: *Quantum Optics in Hybrid Systems: Noise, Photon Emission, and Optomechanical Transduction* Room: 272

S13.1 Hosseini, Mahdi: Quantum state detection and state preparation based on cavity-enhanced nonlinear interaction of atoms with single photon. 11:15AM

S19: Nanothermodynamics and Quantum Information Room: 278-279

S19.1 Crooks, Gavin: Fluctuation theorems, optimal control, and information engines. 11:15AM
S19.2 Murch, Kater: Exploring quantum thermodynamics in continuous measurement of superconducting qubits. 11:51AM
S19.3 Jarzynski, Christopher: Nanothermodynamics in the strong coupling regime. 12:27PM
S19.5 Campbell, Steve: Trade-off between speed and cost in shortcuts to adiabaticity. 1:15PM

S21: Medical Physics Today and Tomorrow Room: 281-282

S21.1 Gatenby, Robert: The Fundamental Role of Darwinian Dynamics in Cancer. 11:15AM
S21.2 Austin, Robert: Attacking cancer dormacy using game theory. 11:51AM
S21.3 Bortfeld, Thomas: Advancing Cancer Treatment Delivery - Role of Physics. 12:27PM
S21.4 Jeraj, Robert: Implications of Tumor Heterogeneity for Precision Medicine. 1:03PM

S22: Artificial Spin Ice and Related Frustrated Artificial Materials Room: NOT A

S22.1 Chern, Gia-Wei: Recent development of artificial spin ice: a theoretical perspective. 11:15AM
S22.4 Canals, Benjamin: Artificial magnets as model systems : from the fragmentation of magnetization to the 6-vertex model. 12:15PM

S23: Superconductivity and Its Competitors Room: NOT B

S23.1 Hirschfeld, Peter: High Tc in monolayers and intercalates of FeSe: role of incipient bands and orbital selectivity. 11:15AM
S23.2 Chubukov, Andrey: Interplay between magnetism, superconductivity, and orbital order in iron-based superconductors – parquet renormalization group study. 11:51AM
S23.4 Kasahara, Shigeru: BCS-BEC crossover in FeSe with small Fermi energies. 12:39PM
S23.5 Behnia, Kamran: Superconductivity and ferroelectricity in calcium-substituted-oxygen-reduced strontium titanate. 1:15PM

S24: Progress in Physics Inspired by Walter Kohn Room: NOT C

S24.1 Niu, Qian: Geometric phase effects in Bloch bands. 11:15AM
S24.2 Murdin, Ben: Theory of Donor States in Silicon. 11:51AM
S24.3 Burke, Kieron: Density Functional Theory: A great physics success story. 12:27PM
S24.5 Galli, Giulia: Predicting materials for sustainable energy sources: The key role of density functional theory. 1:15PM

S25: ***Focus Session Chemical Physics Frontiers at Interfaces II*** Room: 288
S25.1 Eisenthal, Kenneth: Frontiers at Interfaces. 11:15AM
S25.6 Bonn, Mischa: Charge Transfer across Quantum Dot-Oxide Interfaces for High-Efficiency Photovoltaics. 12:39PM

S26: ***Chemical Physics at the Edges I*** Room: 289
S26.1 Ho, Wilson: Atomic-Scale Inelastic Tunneling Probe of Molecular Potentials. 11:15AM
S26.2 Gross, Leo: Radical Chemistry and Charge Manipulation with an Atomic Force Microscope. 11:51AM

S28: Physics Tools for Cultural Heritage Investigations Room: 291
S28.2 Falco, Charles: Ibn al-Haytham and His Influence on Post-Medieval Western Culture. 11:27AM
S28.3 Londero, Pablo: Laser Ablation Surface-Enhanced Raman Spectroscopy (LA-SERS) for the Characterization of Organic Colorants in Cultural Heritage. 12:03PM
S28.4 Guardincerri, Elena: Applications of Muon Radiography. 12:39PM

S29: Entrepreneurs: Building the Company Room: 292
S29.3 Biberger, Maximilian: Starting Up a Company in a Mature Market: Wise or Foolish ?. 11:39AM
S29.5 Murry, Stefan: Applying Scientific Skills to the Business World. 12:27PM

S31: ***Superconductivity and Correlated States in 2D Materials II*** Room: 294
S31.1 Crommie, Michael: Local Probe Characterization of Novel Electronic Phases in 2D Transition Metal Dichalcogenides. 11:15AM

S33: ***Structural and Electronic Properties*** Room: 296
S33.7 Dani, Keshav: Imaging the motion of electrons in 2D semiconductor heterostructures.. 12:27PM

S34: ***Plasmonics*** Room: 297
S34.4 Ma, Renmin: Room Temperature Ultralow Threshold Plasmonic Nanolasers with Unusual Scaling Laws. 11:51AM

S37a: ***Complex Oxide Interfaces and Heterostructures - Defects at Oxide Interfaces*** Room: 383
S37a.6 Diebold, Ulrike: TBD - Complex Oxide Interfaces and Heterostructures. 12:15PM

S42: ***Spins and Defects in Si and SiC*** Room: 389
S42.1 Christle, David: Creating and Controlling Single Spins in Silicon Carbide. 11:15AM
S42.5 Koehl, William: Resonant optical spectroscopy and coherent control of Cr^{4+} spin ensembles in SiC and GaN. 12:27PM

S44: ***Dirac and Weyl Semimetals: Theory IV*** Room: 391
S44.1 Lucas, Andrew: Hydrodynamics of the Dirac fluid in graphene. 11:15AM

S47: ***Magnetization Dynamics II, Metals and Insulators*** Room: 394
S47.4 Kelly, Paul J.: Applications of the scattering theory of magnetization damping. 11:51AM

S49: Patterns and Control in Animal Behavior Room: 396
S49.1 Osborne, Leslie: Shared Sensory Estimates for Human Motion Perception and Pursuit Eye Movements. 11:15AM
S49.2 Berman, Gordon: Predictability and hierarchy in animal behavior. 11:51AM
S49.3 Leifer, Andrew: Whole-brain neural dynamics and behavior in a freely moving worm. 12:27PM
S49.4 Brown, Andre: Representation matters: quantitative behavioral variation in wild worm strains. 1:03PM
S49.5 Fee, Michale: Rhythmic Continuous-Time Coding in the Songbird Analog of Vocal Motor Cortex. 1:39PM

S51: ***Nonreciprocal Devices for Circulation, Amplification, and Readout*** Room: 398
S51.1 Hatridge, Michael: Circulation and Directional Amplification in the Josephson Parametric Converter. 11:15AM

S53: Assembly of Particles on Fluid Interfaces Room: 287
S53.2 Bevan, Michael: Feedback Controlled Colloidal Assembly at Fluid Interfaces. 11:27AM
S53.4 Manoharan, Vinothan N.: How contact-line pinning affects the dynamics of colloidal particles at fluid interfaces. 12:15PM
S53.5 Griffiths, Ian: Mathematical modelling for improved control of magnetic particle interfacial assembly. 12:51PM

V4: *Neural Control of Behavior* Room: 263

V4.4 Ahrens, Misha: Probing the neural control of behavior with whole brain imaging in zebrafish. 3:06PM

V5: *Physics of Cellular Organization* Room: 264

V5.1 Gramlich, Michael: Sharing is Caring: The Role of Actin/Myosin-V in Synaptic Vesicle Transport between Synapses in vivo. 2:30PM

V8: Special APS Presidential Session on Diversity: The Value of Diversity in Physics: Talking Points for Supreme Court Cases & Beyond Room: 267

V8.2 Bertschinger, Ed: TBD. 2:42PM

V8.3 Levine, Sheen S.: TBD. 3:18PM

V8.4 Gates, Sylvester J.: TBD. 3:54PM

V8.5 Otero, Valerie: TBD. 4:30PM

V9: *Tough Hydrogels II* Room: 268

V9.11 Feinberg, Adam: Three-Dimensional Printing of Complex Structures by Freeform Reversible Embedding of Suspended Hydrogels (FRESH). 4:30PM

V10: *Polymers Adsorbed onto Solids - Interplay Among Structures, Dynamics, and Properties II* Room: 269

V10.1 Napolitano, Simone: How irreversible adsorption affects segmental dynamics and glass transition temperature. 2:30PM

V11: *Polymer Crystallization* Room: 270

V11.4 Miyoshi, Toshikazu: Chain Trajectory of Semicrystalline Polymers As Revealed by Solid-State NMR Spectroscopy. 3:06PM

V14: *Noise and Stochastic Fluctuations in Biological Systems* Room: 273

V14.1 Mather, William: Excitable toxin-antitoxin modules coordinated through intracellular bottlenecks. 2:30PM

V14.5 Iyer-Biswas, Srividya: Emergent simplicity in stochastic single-cell dynamics. 3:42PM

V18: *Function from Geometry: 3D Printing to Programable Matter II* Room: 277

V18.1 Inamura, Chikara: High Fidelity Additive Manufacturing of Optically Transparent Glass Structures. 2:30PM

V19: Predictive Modeling of Electron-Phonon Coupling in Condensed-Matter Physics Room: 278-279

V19.1 Gonze, Xavier: Electronic structure of solids, including vibrational effects : Temperature dependence and zero-point motion.. 2:30PM

V19.2 Allen, Philip: Electronic properties with and without electron-phonon coupling. 3:06PM

V19.3 Dreyer, Cyrus E.: The role of electron-phonon coupling in carrier capture at defects. 3:42PM

V19.5 Chan, Garnet: Predictive density matrix embedding theory of correlated systems. 4:30PM

V21: Statistical Physics of On-line Reputation Room: 281-282

V21.2 Cimini, Giulio: Algorithms for reputation and quality in scientific e-communities. 2:42PM

V21.3 Ciampaglia, Giovanni: Comparing the diffusion of reliable and unreliable information. 3:18PM

V21.5 Aste, Tomaso: Distortion of on-line reputation by excess reciprocity: quantification and estimation of unbiased reputation. 4:06PM

V22: Nematic Superconductivity in Doped Topological Materials Room: NOT A

V22.4 Li, Lu: Rotational Symmetry Breaking in a Trigonal superconductor Nb-doped Bi_2Se_3. 3:06PM

V22.5 Kim, Hyunsoo: Beyond Triplet: Unconventional Superconductivity in a Spin-3/2 Topological Semimetal. 3:42PM

V23: Novel Transport Properties of Electrons and Ions Near the Surface of the Helium Liquids Room: NOT B

V23.2 Ikegami, Hiroki: Topological aspects of superfluid ^{3}He investigated by ions trapped at the surface. 2:42PM

V23.5 Konstantinov, Denis: Strong coupling of an electron ensemble on the surface of liquid helium to a microwave cavity. 3:42PM

V24: Detection and Imaging of Magnetic Dynamics Using Nitrogen-Vacancy Centers in Diamond Room: NOT C

V24.2 Berezovsky, Jesse: Coupling nitrogen-vacancy centers to a dynamic ferromagnetic vortex for fast, nanoscale spin addressability and control. 2:42PM

V24.3 Bhallamudi, Vidya: Detecting ferromagnetic dynamics using spinwave induced relaxation of NV spins in diamond. 3:18PM

V24.4 Jayich, Ania: Application of nitrogen vacancy centers for imaging superconducting vortices and spin-relaxation based magnetic resonance probes. 3:54PM

V24.5 Jacques, Vincent: Imaging complex magnetic textures with a single spin microscope. 4:30PM

V25: *Focus Session Chemical Physics Frontiers at Interfaces III* Room: 288

V25.6 Lian, Tianquan: Efficient Hot Electron Transfer by Plasmon Induced Interfacial Charge Transfer Transition. 3:30PM

V26: *Chemical Physics at the Edges II* Room: 289

V26.1 Huang, Libai: Ultrafast Microscopy of Energy and Charge Transport. 2:30PM

V26.2 Ginsberg, Naomi: Resolving ultrafast exciton migration in organic solids at the nanoscale. 3:06PM

V26.3 Papanikolas, John: Visualization of Transport Dynamics in Nanostructures with Pump-Probe Microscopy.. 3:42PM

V29: FIAP Entrepreneurial Panel Discussion and Prize Session Room: 292

V29.1 Panel, Entrepreneurial: FIAP Entrepreneurial Panel. 2:30PM

V29.3 Chen, Tze-Chiang (T.C): George E. Pake Prize Lecture: CMOS Technology Roadmap: Is Scaling Ending?. 3:18PM

V29.4 Khan, Asad: Prize for Industrial Applications of Physics: Reflective Cholesteric Liquid Crystals – Innovations in Materials, Display Technology, and Commercialization. 3:54PM

V31: *Superconductivity and Correlated States in 2D Materials III* Room: 294

V31.4 Oezyilmaz, Barbaros: Tuneable highly-correlated phases in two-dimensional superconductors. 3:06PM

V37a: *Dielectric and Ferroelectric Oxides VII* Room: 383

V37a.1 Kalinin, Sergei: Ferroionic states: coupling between surface electrochemical and bulk ferroelectric functionalities on the nanoscale.. 2:30PM

V40: Marie Curie - A 150th Birthday Celebration Room: 387

V40.1 Gueye, Paul: Marie Curie: the Curie Institute in Senegal to Nuclear Physics. 2:30PM

V40.2 Murray, Cherry: Marie Curie and Mildred Dresselhaus, inspirations to women in science. 3:06PM

V40.3 Howes, Ruth: Marie Curie: Physicist and Woman. 3:42PM

V41: *Fe-based Superconductivity. Spectroscopies* Room: 388

V41.1 Carrington, Antony: Superconducting energy gap structure in KFe_2As_2 and $BaFe_2(As_{1-x}P_x)_2$. 2:30PM

V49: Multiscale Physics of Cellular Remodeling Room: 396

V49.1 Loerke, Dinah: Cell intercalation in morphogenesis. 2:30PM

V49.2 Digman, Michelle: Frontiers in Fluctuation Spectroscopy: Measuring protein dynamics and protein spatio-temporal connectivity. 3:06PM

V49.3 Kasza, Karen: Force generation within tissues during development. 3:42PM

V49.5 Curtis, Jennifer: Spreading and contraction in phagocytosis: The role of actin organization and curvature. 4:30PM

V50: *Skyrmions* Room: 397

V50.4 Gilbert, Dustin: Probing depth-dependent spin textures in artificial skyrmions, magneto-ionic systems and HAMR media. 3:06PM

V51: *Nonreciprocal Devices with Circuits and Optomechanics* Room: 398

V51.1 Lecocq, Florent: Experimental demonstrations of nonreciprocal microwave amplification. 2:30PM

X6: *Physics of Development and Disease I* Room: 265

X6.4 Enderling, Heiko: Local and systemic tumor immune dynamics. 8:36AM

X14: *Knotted Biomolecules* Room: 273

X14.4 Jennings, Patricia: Pierced Lasso Proteins. 8:36AM

X18: *Continuum Descriptions of Discrete Materials* Room: 277

X18.11 Behringer, Robert: How sand grains stop a high speed intruder. 10:00AM

X19: Theory and Simulations of Defect Spin Qubits in Semiconductors Room: 278-279

X19.2 Ivdy, Viktor: First-principles theory on dynamic spin polarization of nuclei in solids. 8:12AM

X19.3 Alkauskas, Audrius: Marshak Lectureship: Vibrational properties of isolated color centers in diamond. 8:48AM

X19.4 Kortan, Victoria: Transition-Metal Dopants in Tetrahedrally Bonded Semiconductors. 9:24AM

X19.5 Doherty, Marcus: The physics and technology of Nitrogen-vacancy centers. 10:00AM

X21: Physics of Proteins: Novel Methods Revealing New Insights Room: 281-282

X21.1 Engel, Greg: Optical multiple-dimension spectroscopy of photosynthetic systems. 8:00AM

X21.3 Li, Huilin: Cryo-EM visualization of the protein machine that replicates the chromosome. 8:48AM

X21.4 Collins, Philip: Single Molecule Enzymology via Nanoelectronic Circuits. 9:24AM

X21.5 Hegemann, Peter: From channel rhodopsins to optogenetics. 10:00AM

X22: Room Termperature Multiferroic BiFeO3 Room: NOT A

X22.4 Lee, Jun Hee: Giant spin-induced polarization and optical-diode effect by electromagnons in $BiFeO_3$. 8:36AM

X22.5 de Sousa, Rogério: Electric-field control of magnetism and magnons in the room temperature multiferroic $BiFeO_3$. 9:12AM

X23: Electron Correlations and Nematic Order in Iron-based Superconductors Room: NOT B

X23.1 Birgeneau, Robert: Electron correlations and magnetism in iron-based superconductors. 8:00AM

X23.2 Dagotto, Elbio: Unexpected Complexity in Iron Based Superconductors. 8:36AM

X23.3 Kreyssig, Andreas: Strong cooperative coupling of pressure-induced magnetic order and nematicity in FeSe. 9:12AM

X23.5 Fisher, Ian: Elastoresistance measurements as a probe of electronic nematicity in Fe-based superconductors. 10:00AM

X24: Transport, Geometry and Entanglement in Fractional Quantum Hall Effect Room: NOT C

X24.1 Papic, Zlatko: Microscopic studies of geometry in the fractional quantum Hall effect. 8:00AM

X24.4 Bhatt, Ravindra: Disorder Driven Fractional Quantum Hall To Insulator Transitions. 9:00AM

X24.5 Eisenstein, James: Spin-dependent tunneling and particle-hole symmetry breaking in 2D electron systems in the fractional quantum Hall regime. 9:36AM

X25: *Focus Session Chemical Physics Frontiers at Interfaces IV* Room: 288

X25.7 Koch, Norbert: Frontiers of controlling energy levels at interfaces. 9:12AM

X26: *Chemical Physics at the Edges III* Room: 289

X26.1 Leone, Stephen: Attosecond electronic band gap dynamics.. 8:00AM

X26.2 Chang, Zenghu: Isolated attosecond pulses in the water window. 8:36AM

X27: *Dipolar Interactions in Ultracold Gases* Room: 290

X27.1 Ferlaino, Francesca: Extended Bose-Hubbard models with ultracold magnetic atoms.. 8:00AM

X29: The Butterfly Plot Turns 40 Room: 292

X29.1 Hofstadter, Douglas: Bumping into the Butterfly, When I Was But a Bud. 8:00AM

X29.2 Claro, Francisco: The Hofstadter Butterfly and some physical consequences.. 8:36AM

X29.5 Ketterle, Wolfgang: Ultracold atoms in strong synthetic magnetic fields. 9:36AM

X34: *Plasmonic Metamaterials* Room: 297

X34.4 Koenderink, Femius: Light-matter interaction in hybrid plasmonic-photonic resonators. 8:36AM

X40: Division of Physics of Beams and Forum on International Physics Introduce the World's Newest Light Sources Room: 387

X40.2 Huang, Di-Jing: Status and Opportunities of Taiwan Photon Source. 8:12AM

X40.3 Eriksson, Mikael: Status and Future Development Plans for the MAX IV Light Sources: pushing further towards high brightness and coherence.. 8:48AM

X40.4 Ko, In: New Research Opportunities with PAL-XFEL Facility. 9:24AM

X40.5 Paolucci, Giorgio: SESAME: an opportunity for science in the Middle-East. 10:00AM

X41: *Fe-based Superconductivity: Magnetic Excitations* Room: 388

X41.1 Dai, Pengcheng: Uniaxial pressure dependence of the magnetic ordered moment and transition temperatures in BaFe2-xNixAs2. 8:00AM

X42: *Spin Transport in III-V and Group IV Semiconductors* Room: 389

X42.1 Ciorga, Mariusz: Giant spin signals in two-terminal ferromagnet/2DEG/ferromagnet spin-valve devices.. 8:00AM

X43: *Defects and Structural Control in Magnetic Oxide Heterostructures* Room: 390

X43.8 Kan, Daisuke: Interface engineering of metal-oxygen bonds as a new route for exploring functional properties of transition metal oxides. 9:24AM

X45: *Two-Dimensional Topological Superconductors: II* Room: 392

X45.1 Matos Abiague, Alex: Manipulating Majorana Bound States with Tunable Magnetic Textures. 8:00AM

X46: *Topological Quantum Information* Room: 393

X46.1 Car, Diana: Synthesis of InSb Nanowire Architectures – Building Blocks for Majorana Devices. 8:00AM

X48: *Frustrated Magnetism: 2D Antiferromagnets* Room: 395

X48.6 Garlea, Ovidiu: Supersolid-like magnetic states in a mixed honeycomb-triangular lattice system.. 9:00AM

X49: Robot Scientists and Machine Learning for Automated Modeling and Control of Complex Systems Room: 396

X49.1 King, Ross: The Adam and Eve Robot Scientists for the Automated Discovery of Scientific Knowledge. 8:00AM

X49.2 Lipson, Hod: Automated inference of biological and physical models. 8:36AM

X49.3 Daniels, Bryan: Automated adaptive inference of phenomenological dynamical models. 9:12AM

X49.4 Brunton, Steven: Discovering governing equations from data by sparse identification of nonlinear dynamics. 9:48AM

X49.5 Marzen, Sarah: Thinking in machines, not statistics. 10:24AM

X50: *Nanoscale Magnetic Dynamics* Room: 397

X50.4 Kimel, Alexey: Femtosecond control and dynamics of magnetism at the nanoscale. 8:36AM

X50.8 Keatley, Paul: The magnetization dynamics of nano-contact spin-torque vortex oscillators. 9:48AM

Y6: *Physics of Development and Disease II* Room: 265

Y6.7 Gilkes, Daniele: Hypoxia alters the physical properties of the tumor microenvironment.. 12:27PM

Y19: Computational Approaches for Energy Materials Room: 278-279

Y19.1 Ahuja, Rajeev: Beller Lectureship: Materials for Li & Na Batteries :A Computational Materials Science Point of View. 11:15AM

Y19.2 Jena, Puru: Rational design of nontoxic electrolytes for metal-ion batteries. 11:51AM

Y19.3 Neaton, Jeffrey B.: Discovery of new solar fuels photoanode materials with a combination of high-throughput theory and experiment. 12:27PM

Y19.5 Hoang, Khang: Defect physics as key to understanding complex battery electrode materials. 1:15PM

Y21: Emergent Magnetism at Oxide Interfaces Room: 281-282

Y21.1 Bhattacharya, Anand: Tailoring non-collinear magnetism in oxide heterostructures, a path to novel memory. 11:15AM

Y21.2 Liu, Yaohua: Emergent Magnetic Phenomena at Oxide Interfaces. 11:51AM

Y21.3 Grutter, Alexander: Controlling Emergent Ferromagnetism at Complex Oxide Interfaces. 12:27PM

Y21.4 Han, Myung-Joon: Magnetism, spin-lattice-orbital coupling and exchange-correlation energy in oxide heterostructures: Nickelate, titanate, and ruthenate. 1:03PM

Y21.5 Gibert, Marta: Magnetic coupling through lanthanum nickelate in non-metallic (111) $LaMnO_3/LaNiO_3$ superlattices. 1:39PM

Y22: Experimental Progress of Valley Transport in 2D Materials Room: NOT A

Y22.2 Mak, Kin Fai: Valley and spin dependent physics in two-dimensional materials. 11:27AM

Y22.3 Lau, Chun Ning: Tunable valley symmetries of quantum Hall states in few-layer graphene. 12:03PM

Y22.4 Ju, Long: Topological Valley Transport at Bilayer Graphene Domain Walls. 12:39PM

Y23: New Developments in Topological Photonics: Interactions, Non-Hermiticity and Beyond Room: NOT B

Y23.2 Khanikaev, Alexander: Three-Dimensional All-Dielectric Photonic Topological Insulator. 11:27AM

Y23.3 Hafezi, Mohammad: Quantum transport properties in topological photonics. 12:03PM

Y24: Optomechanics with Fluids and Superfluids Room: NOT C

Y24.1 Lu, Tao: Cavity Optical Spring Sensing. 11:15AM

Y24.2 Harris, Jack: Quantum optomechanics in a superfluid-filled cavity. 11:51AM

Y24.3 Bowen, Warwick: Probing the dynamics of two dimensional superfluids with cavity optomechanics.. 12:27PM

Y24.4 Carmon, Tal: Ripplon Laser. 1:03PM

Y24.5 Favero, Ivan: Control of nano-optomechanical resonators in liquids. 1:39PM

Y34: *Quanum Effects in Plasmonic Metamaterials* Room: 297

Y34.7 Mortensen, N. Asger: Quantum and nonlocal phenomena in plasmonic nanoparticles. 12:27PM

Y36: *Thermoelectrics: Characterization, Nanostructures* Room: 299

Y36.1 He, Jian: TBD - Thermoelectric Materials and Novel Thermoelectric Phenomena. 11:15AM

Y40: Climate Change and Sea Level Rise Room: 387

Y40.1 Corden, Pierce: Sea Level Rise and Its Effects on U.S. And European Cities. 11:15AM

Y40.2 Hamnett, Michael P.: Climate Change in the Pacific Islands. 11:51AM

Y40.4 Kopp, Robert: Challenges of projecting local sea-level changes and their uncertainties. 12:39PM

Y41: *Fe-based Superconductivity. C_4 and other Subjects* Room: 388

Y41.1 Chmaissem, Omar: Universal Properties of the C_4 Magnetic Phase in Hole Doped Ternary Superconducting Pnictides. 11:15AM

Y42: *Solid-State Hole Spin Qubits* Room: 389

Y42.1 Korkusinski, Marek: Hole spins as qubits in gated lateral devices opportunities and challenges. 11:15AM

Y45: *Topological Superconductivity: Theory* Room: 392

Y45.1 Jiang, Yi-Fan: Edge quantum criticality and emergent supersymmetry in topological phases.. 11:15AM

Y49: Environment-energy Nexus a Physics Perspective Room: 396

Y49.1 Banavar, Jayanth: Metabolic scaling and biodiversity of forests. 11:15AM

Y49.3 Croze, Ottavio: Growing swimming algae for bioenergy. 12:03PM

Y49.4 Maranas, Janna: Cell wall science for a sustainable future. 12:39PM

Y49.5 Ostling, Annette: Inferring biodiversity maintenance mechanisms from ecological pattern. 1:15PM

March Meeting Invited Talks.

Focus Sessions in italics, **Invited Sessions** in bold.