

March Meeting 2013

Session Index

Session 1A

1A. Industrial Physics Forum: Innovation and Entrepreneurship

Session A

A1. Invited Session: Spin Caloritronics

A2. Invited Session: Novel Superconductivity in FE Selenide Superconductors

A3. Invited Session: Second Landau Level: Quantum Phases

A4. Industrial Physics Forum: Frontiers in Physics

A5. Focus Session: Van der Waals Bonding in Advanced Materials - Materials Behavior

A6. Topological Insulators: Novel States in Topological Insulators

A7. Focus Session: Graphene Devices I

A8. Graphene: Quantum Hall Effect

A9. Invited Session: Teaching Physics and Other STEM Subjects in an Urban Environment

A10. Invited Session: Hard and Soft Materials Modeling, Simulations and Big Data

A11. Invited Session: Directed Assembly of Hybrid Materials

A12. Focus Session: Complex Oxide Interfaces - Nickelates

A13. Focus Session: Topological Materials - Magnetic Topological Insulators

A14. Focus Session: Perovskite Cobaltite & Titanate Heterostructures

A15. Focus Session: Exchange Bias and Magnetic Interfaces

A16. Focus Session: Spin-Dependent Physics in Organic Compounds

A17. Focus Session: Multiferroic Skyrmions

A18. Focus Session: Spin-transfer Torque: Devices and Dynamics

A19. Metal-Insulator Transitions: Iridiates and Heterostructures - Experiment & Theory

A20. Focus Session: Metamaterials

A21. Focus Session: New Ferroelectrics and Ferroelectric Mechanisms

A22. Organic Conductors & Other Correlated Electron Systems

A23. Focus Session: Dopants and Defects in Semiconductors I

A24. Novel Technologies and Algorithms

A25. Superconducting Qubits: Magnetic Flux and Vortex Noise on Qubits and Resonators, Quasiparticles, and Qubit-Resonator Designs

A26. Focus Session: Semiconductor Qubits - Optical Hybridization

A27. Focus Session: Adiabatic Quantum Computing I

A28. Focus Session: Statistical Physics of Active Systems Away from Detailed Balance

A29. Three Dimensional Topological Insulators: Chalcogenides

A30. Colloids: Diffusion and Transport

A31. Polymer Membranes for Clean Energy and Water I

A32. Focus Session: Crystallization and Directed Assembly of Multicomponent Systems

A33. Focus Session: Dielectric and Ferroelectric Polymers for Electrical Applications:

Dielectrics

A34. Focus Session: Dynamics of Glassy Polymers Under Nanoscale Confinement: Glass

Transition

A35. Superconductivity: Tunneling Phenomena

A36. Theory and Computation of Novel Superconductivity

A37. Focus Session: Fe-based Superconductors: Coexistence with Magnetism

A38. Focus Session: Instrumentation and Measurement Science for a Sustainable Energy

Future

A39. Focus Session: Materials in Extremes: Theory and Simulations

A40. Focus Session: Collective Diffusion and Self Organization

- [A41. Localization, Cooling, Trapping and Clocks](#)
- [A42. Integer Quantum Hall Effect](#)
- [A43. Focus Session: Multiscale modeling--Coarse-graining in Space and Time I](#)
- [A44. Focus Session: Population and Evolutionary Dynamics I](#)
- [A45. Focus Session: Structure and Dynamics of Biomembranes I](#)
- [A46. SPS Undergraduate I](#)
- [A47. Invited Session: Excitable Dynamics in Biological Systems](#)

[Session B](#)

- [B1. Invited Session: Logical Spin Qubits for Quantum Computation](#)
- [B2. Invited Session: 2D Charge Ordering in Under-Doped Cuprates](#)
- [B3. Invited Session: Frustration and Quantum Criticality](#)
- [B4. Invited Session: Cold Atoms on Higher Orbital Bands](#)
- [B5. Focus Session: Van der Waals Bonding in Advanced Materials - Surfaces, Growth, and Friction](#)
- [B6. Focus Session: CVD Graphene - Growth and Characterization](#)
- [B7. Focus Session: Graphene Devices II](#)
- [B8. Focus Session: Hexagonal BN, Graphene, and Graphene Oxide Synthesis I](#)
- [B9. Invited Session: FIP Symposium on the Science of Climate](#)
- [B10. Invited Session: Celebrating 100 Years of Physical Review at APS](#)
- [B11. Invited Session: Polymer Membranes for Clean Energy and Water II](#)
- [B12. Focus Session: Complex Oxide Interfaces - Titanates](#)
- [B13. Focus Session: Topological Materials - Topological Superconductors and Half Heuslers](#)
- [B14. Focus Session: Magnetic Nanoparticles I](#)
- [B15. Focus Session: Spin-orbit Effects in Spin-dependent Transport and Dynamics](#)
- [B16. Focus Session: Spin-Dependent Physics in Graphene](#)
- [B17. Focus Session: Iridate Mott Insulators](#)
- [B18. Focus Session: Spin-Dependent Phenomena in Semiconductors - Spin Valleytronics and Spin Orbit](#)
- [B19. Metal Insulator transitions in Vanadates: exp/theory](#)
- [B20. Focus Session: Mesoscopics - Transport](#)
- [B21. Focus Session: Hexagonal Ferrites and Manganites](#)
- [B22. Nano Particles, Wires, and Cavities](#)
- [B23. Focus Session: Dopants and Defects in Semiconductors II](#)
- [B24. Focus Session: Materials in Extremes: High-Strain-Rate Phenomena](#)
- [B25. Superconducting Qubits: Loss Mechanisms \(TLS\) and Novel Materials](#)
- [B26. Focus Session: Quantum Characterization, Verification, and Validation I](#)
- [B27. Focus Session: Adiabatic Quantum Computing II](#)
- [B28. Focus Session: Statistical Physics of Active Systems Away from Detailed Balance: Motors, Swimmers and All That](#)
- [B29. Fluctuations in Non-Equilibrium Systems](#)
- [B30. Colloids: Transitions and Structures](#)
- [B31. Focus Session: Nano to Meso-Scale Structure in Ordered Soft Matter: Liquid Crystal Structure, Dynamics and Function I](#)
- [B32. Focus Session: Polymer Crystallization and Morphology](#)
- [B33. Focus Session: Dielectric and Ferroelectric Polymers for Electrical Applications: Ferroelectrics](#)
- [B34. Focus Session: Dynamics of Glassy Polymers Under Nanoscale Confinement](#)
- [B35. Superconductivity: Spin Properties](#)
- [B36. HTSC: Transport Properties](#)
- [B37. Focus Session: Fe-based Superconductors: Impurity Effects](#)
- [B38. Focus Session: Building a Thriving Undergraduate Physics Program](#)
- [B39. Focus Session: Imaging & Modifying Materials Under Extreme Conditions of Radiation,](#)

Temperature, and at the Limits of Space and Time Resolution

B40. Surfaces, Interfaces, and Thin Films: Electronic and Magnetic Properties

B41. Non-equilibrium Physics with Cold Atoms II

B42. Quantum Hall Effect: Edges, Interferometry, & $\nu = 5/2$

B43. Focus Session: Multiscale modeling--Coarse-graining in Space and Time II

B44. Focus Session: Population and Evolutionary Dynamics II

B45. Focus Session: Structure and Dynamics of Biomembranes II

B46. SPS Undergraduate II

B47. Invited Session: Physical Organizing Principles of Biomineral Formation

Session C

C1. Invited Session: Spin-Orbit-Controlled Ground States in Single-Crystal Iridates

C2. Invited Session: Coulomb Drag and Exciton Condensation in Semiconductor and Graphene

Double Layers

C3. Invited Session: Metamaterials

C4. Invited Session: Industrial Physics Forum: Frontiers in Nanomanufacturing

C5. Focus Session: Computational Discovery and Design of New Materials for Energy

Applications

C6. Focus Session: Hexagonal BN, Graphene, and Graphene Oxide Synthesis II

C7. Focus Session: Graphene Devices III

C8. Complex Structured Materials: Transport and Optical Characterization of Dichalcogenides

C9. Invited Session: Recent Developments in Density Functional Theory I

C10. Invited Session: Stabilization and Dynamics of Magnetic Skyrmions

C11. Invited Session: Quantum Communication and Cryptography

C12. Focus Session: Complex Oxide Interfaces - Polar interfaces I

C13. Focus Session: Topological Materials - Search for New Materials

C14. Focus Session: Magnetic Oxide Superlattices and Multiferroics

C15. Focus Session: New Frustrated Models: Theory & Materials

C16. Focus Session: Spin Dynamics and EPR

C17. Magnetic Theory I

C18. Focus Session: Spin-Dependent Phenomena in Semiconductors - Spin Injection and

Transport

C19. Vanadate Experiment: Devices

C20. Focus Session: Metamaterials - Quantum Dots

C21. Focus Session: Domains, Switching, and Memristors

C22. Metamaterials and THz Spectroscopy

C23. Focus Session: Dopants and Defects in Semiconductors III

C24. Focus Session: Materials in Extremes: Chemistry under Extreme Conditions

C25. Superconducting Qubits: 3D Architecture

C26. Semiconductor Qubits - Gates and Robust Control

C27. Quantum Computing, Quantum Algorithms, and Quantum Simulation

C28. Equilibrium Statistical Mechanics, Followed by GSNP Student Speaker Award

C29. Flow in Confinement and Porous Media

C30. Polymers and Organic Systems

C31. Polymeric Elastomers and Gels

C32. Polymer Nanocomposites I

C33. Focus Session: Organic Electronics and Photonics - Interfaces and Contacts

C34. Thin Films of Block Copolymers and Hybrid Materials: Mechanics and Dynamics

C35. Superconductivity: Vortices I

C36. HTSC: Optical Probe of Competing Orders

C37. Focus Session: Fe-based Superconductors: DFT and DMFT

C38. Undergraduate Physics Education

C39. Focus Session: Materials for Electrochemical Energy Storage I

[C40. Focus Session: Control of Ultrathin Film Morphology](#)
[C41. Quantum Simulation with Cold Atoms and Molecules](#)
[C42. Quantum Hall Effect: Materials, Geometries, & \$\nu = 2\$](#)
[C43. Focus Session: Plyler, Broida, Langmuir, and Research in an Undergraduate Institution prizes](#)
[C44. Focus Session: Population and Evolutionary Dynamics III](#)
[C45. Focus Session: Physics of Biomineralization](#)
[C46. SPS Undergraduate III](#)
[C47. Invited Session: Statistical Physics for Systemic Risk and Infrastructural Interdependencies](#)
[Session D](#)
[D1. APS Prizes and Awards Ceremonial Session](#)
[Session E](#)
[E1. Welcome Reception](#)
[E11. Special Outreach Session: Meso-Physics](#)
[Session F](#)
[F1. Invited Session: Physics from the Laboratory to the Universe: Davisson-Germer/Heineman/Onsager/Lilienfeld Prizes](#)
[F2. Invited Session: Low Energy Excitations in Iridates](#)
[F3. Invited Session: Quantum Computing in AMO](#)
[F4. Industrial Physics Forum: Frontiers in Biophysics](#)
[F5. Focus Session: Computational Discovery and Design of New Two-dimensional Materials beyond Graphene](#)
[F6. Focus Session: Van der Waals Bonding in Advanced Materials - Functional Materials](#)
[F7. Focus Session: Graphene Devices IV](#)
[F8. Functionalization and Decoration of Graphene](#)
[F9. Invited Session: The Impact of Hydraulic Fracturing](#)
[F10. Invited Session: Spin-Orbit Transfer Torques in Magnetic Bilayers](#)
[F11. Invited Session: Polymer Physics Prize Session](#)
[F12. Focus Session: Complex Oxide Interfaces - Polar interfaces II](#)
[F13. Topological Insulators: Theory I](#)
[F14. Focus Session: Material Properties Important for Spin-torque Dynamics](#)
[F15. Focus Session: New Frustrated Quantum States: Theory & Materials](#)
[F16. Focus Session: High Magnetic Anisotropy Materials](#)
[F17. Focus Session: Magnetic Spinel and Perovskite Heterostructures](#)
[F18. Two Dimensional Topological Insulators I](#)
[F19. Heavy Fermions and Quantum Criticality in 115's](#)
[F20. Focus Session: Mesoscopics - Optics and Plasmonics](#)
[F21. Focus Session: Multiferroics and Magnetoelectrics](#)
[F22. Strongly Correlated Electron Theory I](#)
[F23. Focus Session: Dopants and Defects in Semiconductors IV](#)
[F24. Focus Session: Computational Studies of Interactions between Electromagnetic Fields and Materials I](#)
[F25. Superconducting Qubits: Read-out, Feedback and Stabilization](#)
[F26. Quantum Cryptography, Quantum Communication, and Quantum Measurement](#)
[F27. Physical Implementations of Qubits](#)
[F28. Physical Approaches to Social Modeling](#)
[F29. Focus Session: Spin Glasses: Advances, Algorithms, and Applications](#)
[F30. Membranes, Micelles, Vesicles, Gels and Complex Fluids](#)
[F31. Focus Session: Nano to Meso-Scale Structure in Ordered Soft Matter: Liquid Crystal Structure, Dynamics and Function II](#)
[F32. Polymer Nanocomposites II](#)

[F33. Focus Session: Organic Electronics and Photonics - Light Emission and Management](#)
[F34. Charged Colloids with Short-Range Attractions I](#)
[F35. HTSC: ARPES and TR-ARPES](#)
[F36. Superconductivity: Josephson Effect](#)
[F37. Focus Session: Fe-based Superconductors: Order Parameter Symmetry/Fe\(Te,Se\) Films](#)
[F38. Physics Education Programs, Policy and the Media](#)
[F39. Focus Session: Materials in Extremes: High Pressures](#)
[F40. Surfaces, Interfaces, and Thin Films: Molecules on Surfaces](#)
[F41. Rotation, Effective Fields, and Hydrodynamics in Atomic Gases](#)
[F42. Focus Session: Multiscale Modeling--Coarse-graining in Space and Time III](#)
[F43. Focus Session: Motor dynamics---from Single Molecules to Cells I](#)
[F44. Focus Session: Stochasticity in Cellular Networks](#)
[F45. Focus Session: Physics of Proteins I](#)
[F46. SPS Undergraduate IV](#)
[F47. Invited Session: Solid-State Nanopores: Translocation and Applications](#)

[Session G](#)

[G1. Invited Session: Anderson-Higgs Boson in Condensed Matter Physics](#)
[G2. Invited Session: Superconductivity in Topological Insulators](#)
[G3. Invited Session: Progress in the New Energy Frontier](#)
[G4. Invited Session: Frontiers in Nanomanufacturing: Atomic Scale Metrology, Large Scale Industry Technology Challenges and Inherent Device Limitations](#)
[G5. Focus Session: Computational Discovery and Design of New Materials: Thermodynamics and Mechanical Properties](#)
[G6. Focus Session: CVD Graphene - Doping and Defects](#)
[G7. Focus Session: Graphene Devices V](#)
[G8. Graphene: Nanoribbons, Dots, and Strain](#)
[G9. Invited Session: Broadening Participation in Physics and Other STEM Fields](#)
[G10. Invited Session: Physics for the Public: Advice From the Pros](#)
[G11. Invited Session: Concurrent Multiple Length-Scale Modelling](#)
[G12. Focus Session: Complex Oxide Interfaces - Polar interfaces III](#)
[G13. Topological Insulators: Theory II](#)
[G14. Focus Session: Magnetic Nanoparticles II](#)
[G15. Focus Session: Quasi-Triangular Frustrated Magnets](#)
[G16. Focus Session: Quantum Spins](#)
[G17. Focus Session: Improper Ferroelectrics](#)
[G18. Two Dimensional Topological Insulators II: Graphene and Related Materials](#)
[G19. URu₂Si₂ Hidden Order and other U-based Systems](#)
[G20. Focus Session: Metamaterials - Nanoparticles and Nanoparticle Arrays](#)
[G21. Focus Session: Theories of Electric, Elastic, Magnetic and Cross-coupling Terms in Ferroic Lattices](#)
[G22. Electronic Phenomena of Nanostructures](#)
[G23. Focus Session: Dopants and Defects in Semiconductors V](#)
[G24. Focus Session: Computational Studies of Interactions between Electromagnetic Fields and Materials II](#)
[G25. Itinerant Photons, Squeezed States, and Entanglement](#)
[G26. Quantum Characterization, Verification, and Validation II](#)
[G27. Quantum Error Correction and Quantum Control](#)
[G28. Statistical Mechanics of Social Systems](#)
[G29. FIAP Prize Session](#)
[G30. Self-Assembly](#)
[G31. Padden Award Symposium](#)
[G32. Focus Session: Polymer Nanocomposites: Active Particles](#)

[G33. Focus Session: Organic Electronics and Photonics - Theoretical Photophysics and Excited State Dynamics](#)

[G34. Polymer Blends](#)

[G35. Focus Session: Search for New Superconductors I](#)

[G36. Superconductivity: Transport Properties](#)

[G37. Focus Session: Fe-based Superconductors: RPA and Beyond/Gap Structure](#)

[G39. Matter at Extreme Conditions: Experiment](#)

[G40. Spin-Orbit Coupling in Ultracold Atom Systems](#)

[G41. Attosecond Physics and Optics](#)

[G42. Focus Session: Physics of Glasses and Viscous Liquids I](#)

[G43. Focus Session: Motor dynamics---from Single Molecules to Cells II](#)

[G44. Multi-cellular Processes and Development](#)

[G45. Focus Session: Physics of Protein Aggregation](#)

[G46. SPS Undergraduate V](#)

[G47. Invited Session: Elasticity and Plasticity Outside of Equilibrium: Modeling From Micro to Meso Scales](#)

[Session H](#)

[H1. Poster Session I \(2:00 - 5:00PM\)](#)

[Session J](#)

[J1. Invited Session: Buckley Prize Session](#)

[J2. Invited Session: Topological States and Plasmonics in Graphene](#)

[J3. Invited Session: Colloidal Carbon Nanotubes](#)

[J4. Invited Session: Physics Challenges in Biophysics](#)

[J5. Focus Session: Computational Discovery and Design of New Materials: Graphene](#)

[J6. Growth, Structure, Properties, and Defects](#)

[J7. Focus Session: Graphene Devices VI](#)

[J8. Focus Session: Graphene: Raman, Strain, Thermal](#)

[J9. Invited Session: Computational Physics at the Bleeding Edge: To Exascale and Beyond](#)

[J10. Invited Session: Fostering Collaborations in Minority-Serving Institutions](#)

[J11. Dillon Medal Symposium](#)

[J12. Topological Insulators: Magnetic Transport and Weak Localization](#)

[J13. Focus Session: Topological Materials - Thin Films](#)

[J14. Magnetic Devices and Techniques](#)

[J15. Focus Session: Quantum Spin Liquid Theory](#)

[J16. Focus Session: Molecular Nanomagnets/Devices](#)

[J17. Focus Session: Magnetic Oxide Nano- & Hetero-Structures](#)

[J18. Two Dimensional Topological Insulators: Theory](#)

[J19. Quantum Criticality in Lanthanide/Actinide & Related Systems - Experiment](#)

[J20. Focus Session: Metamaterials - Nanowires and Plasmonic Enhancement](#)

[J21. Focus Session: Oxide Superlattices, Interfaces and Growth](#)

[J22. Optical Properties and Interactions in Quantum Dots and Wells](#)

[J23. Optical Excitations, Defects and Synthesis of Dielectrics](#)

[J24. Quantum Many-Body Systems and Methods I](#)

[J25. Focus Session: Explicitly correlated Methods and Quantum Few-Body Systems](#)

[J26. Semiconductor Qubits - Spin Measurement and Noise](#)

[J27. Focus Session: Nano/Optomechanics I](#)

[J28. Liquid Crystals I](#)

[J29. Non-Equilibrium Statistical Mechanics](#)

[J30. Focus Session: Continuum Descriptions of Discrete Materials](#)

[J31. Focus Session: Dynamics of Glassy Polymers Under Nanoscale Confinement: Friction and Adhesion](#)

[J32. Focus Session: Assembly & Function of Biomimetic & Bioinspired Materials I](#)

- [J33. Focus Session: Organic Electronics and Photonics - Photophysics and Charge Transfer](#)
- [J34. Focus Session: Charged Colloids with Short-Range Attractions II](#)
- [J35. Superconductivity: Vortices II](#)
- [J36. Superconductivity: Properties and Phenomena](#)
- [J37. Focus Session: Fe-based Superconductors: Pressure effects](#)
- [J38. Focus Session: Materials for Electrochemical Energy Storage II](#)
- [J39. Matter at Extreme Conditions: Theory and Simulations](#)
- [J40. Quantum Simulation II](#)
- [J41. Interacting Bosons in Optical Lattices](#)
- [J42. Focus Session: Physics of Glasses and Viscous Liquids II](#)
- [J43. Focus Session: Protein Misfolding and Aggregation I](#)
- [J44. Biological Networks](#)
- [J45. Focus Session: Physics of Proteins II](#)
- [J46. Focus Session: X-ray and Neutron Instruments and Measurement Science](#)
- [J47. Invited Session: Mechanics, Dynamics, and Organization in Cell Growth and Division](#)

Session K

- [K5. GPC Business Meeting](#)
- [K11. DPOLY Business Meeting](#)
- [K15. GMAG Business Meeting](#)
- [K20. FIAP Business Meeting](#)
- [K25. GOI Business Meeting](#)
- [K28. GSNP Business Meeting](#)
- [K39. FED Business Meeting](#)
- [K42. DCP Business Meeting](#)
- [K43. DCMP Business Meeting](#)
- [K44. DMP Business Meeting](#)
- [K45. DBIO Business Meeting](#)
- [K46. GIMS Business Meeting](#)

Session M

- [M1. Invited Session: Tunable, Intense, Coherent THz Emission From a High Temperature Superconductor](#)
- [M2. Invited Session: Interaction-Driven Quantum Hall States in Graphene](#)
- [M3. Invited Session: Novel Quantum Phases in Artificial Lattices and Networks](#)
- [M4. Invited Session: Quantum Simulation with Photons](#)
- [M5. Focus Session: Computational Discovery and Design of New Materials: Semiconductors, Molecular Systems and Interfaces](#)
- [M6. Graphene: Multilayer and Tunneling](#)
- [M7. Focus Session: Graphene Devices VII](#)
- [M8. Focus Session: Graphene - Twisted Layers, Stacking](#)
- [M9. Invited Session: A History of Physics in Industry followed by Panel Discussion](#)
- [M10. Invited Session: Physics Jobs in Government and Science Policy followed by Panel Discussion](#)
- [M11. Invited Session: Polymer Electrolytes for Energy Storage](#)
- [M12. Topological Insulators: Topological States in Superconductors](#)
- [M13. Focus Session: Topological Materials - Surface Effects](#)
- [M14. Focus Session: Patterned Magnetic Nanostructures](#)
- [M15. Focus Session: Spin/orbital Frustration and Short-range Order](#)
- [M16. Focus Session: Ferromagnetic Chains/Nanostructures](#)
- [M17. Focus Session: Frustrated Multiferroics](#)
- [M18. Focus Session: Spin-Dependent Phenomena in Semiconductors - Diamond](#)
- [M19. Strongly Correlated Electron Systems and Phase Transitions](#)
- [M20. Focus Session: Metamaterials - Plasmonics](#)

- [M21. Focus Session: Relaxors, Nanostructures and Morphotropic Phase Boundaries](#)
- [M22. Strongly Correlated Electron Theory II](#)
- [M23. Optical and Dielectric Properties](#)
- [M24. Electronic Structure Methods I](#)
- [M25. Focus Session: Modeling of Rare Events I](#)
- [M26. Semiconductor Qubits - RF Measurement and Hybridization](#)
- [M27. Focus Session: Quantum Error Correction and Decoherence Control I](#)
- [M28. Liquid Crystals II](#)
- [M29. Focus Session: Wet Granular Material: Capillary Aggregation to Shaping of Landscapes](#)
- [M30. Self-Assembly: Janus and other Colloids](#)
- [M31. Polymer Melts and Solutions](#)
- [M32. Focus Session: Polymer Nanocomposites: Dynamics](#)
- [M33. Focus Session: Organic Electronics and Photonics - Excited State Dynamics for Photovoltaics](#)
- [M34. Thin Films of Block Copolymers and Hybrid Materials: Directed Assembly I](#)
- [M35. HTSC: Mainly X-ray Probes and Related Theory](#)
- [M36. Superconductivity: Josephson and Nanoscale Phenomena](#)
- [M37. Focus Session: Fe-based Superconductors: Novel Selenides](#)
- [M38. Energy Storage and Conversion](#)
- [M39. Drops, Bubbles, and Interfacial Fluid Mechanics I](#)
- [M40. Surfaces, Interfaces, and Thin Film Reactions: Kinetics & Dynamics](#)
- [M41. Theory of Quantum Gases in Low Dimensions](#)
- [M42. Focus Session: Physics of Glasses and Viscous Liquids III](#)
- [M43. Focus Session: Protein Misfolding and Aggregation II](#)
- [M44. Focus Session: Translocation through Nanopores I](#)
- [M45. Focus Session: Physics of the Cytoskeleton I](#)
- [M46. Novel Instrumentation and Measurements for Biomedical Research](#)
- [M47. Invited Session: Imaging and Manipulating Multicellular Systems and Molecular Clusters](#)
- [M48. Tutorial for Authors and Referees](#)

Session N

- [N1. Invited Session: Quantum Computing With Diamond](#)
- [N2. Invited Session: Electron Matter in FE-Based Superconductors](#)
- [N3. Invited Session: Physics For Everyone](#)
- [N4. Invited Session: Climate as a Complex Dynamical System](#)
- [N5. Focus Session: Computational Discovery and Design of New Materials: Electronic properties of 1D and 2D materials](#)
- [N6. Focus Session: Graphene - Electronic Properties, Gap Formation](#)
- [N7. Focus Session: Graphene Devices VIII](#)
- [N8. Transport and Optical Phenomena in Carbon Nanotubes](#)
- [N9. Invited Session: Computational Spectroscopy](#)
- [N10. Invited Session: Smart Magnetic Particles: On-Chip Transport, Assembly and Biomedical Applications](#)
- [N11. Invited Session: Landmark Reports in Education](#)
- [N12. Focus Session: Thermoelectrics Materials Waste Heat](#)
- [N13. Focus Session: Topological Materials - Topological Superconductivity](#)
- [N14. Focus Session: Spin-dependent Tunneling and High Magnetoresistance Devices](#)
- [N15. Focus Session: Frustration in 1D and Spinels](#)
- [N16. Focus Session: Molecules on Surfaces](#)
- [N17. Focus Session: Manganite Dynamics and Structure](#)
- [N18. Focus Session: Spin-Dependent Phenomena in Semiconductors - Spin Orbit and](#)

Mesoscopic

- [N19. Open Quantum Systems and Decoherence](#)

- [N20. Focus Session: Mesoscopics - Tunneling](#)
- [N21. Focus Session: BiFeO₃ and Domain Wall Conductance](#)
- [N22. Artificially Structured Materials: Growth, Structure, and Related Phenomena](#)
- [N23. Fractional Quantum Hall Theory I](#)
- [N24. Electronic Structure Methods II](#)
- [N25. Focus Session: Modeling of Rare Events II](#)
- [N26. Entanglement in Many-Body Systems](#)
- [N27. Focus Session: Nano/Optomechanics II](#)
- [N28. Continua, Networks, & Earthquakes](#)
- [N29. Granular Packing and Impacting](#)
- [N30. Self-Assembly: Mostly Biopolymers, DNA and Nanoparticles](#)
- [N31. Membrane and Membrane Protein Interactions](#)
- [N32. International Physics Programs and History of Physics](#)
- [N33. Focus Session: Polymers for Energy Storage and Conversion](#)
- [N35. Focus Session: Search for New Superconductors II](#)
- [N36. Superconductivity: Mesoscopic Techniques and Applications](#)
- [N37. Focus Session: Fe-based Superconductors: Spin Fluctuations](#)
- [N38. Novel Photophysics and Transport in NanoPV I](#)
- [N39. Drops, Bubbles, and Interfacial Fluid Mechanics II](#)
- [N40. Dipolar Gases and Rydberg Atoms](#)
- [N41. Hybrid Systems for Quantum Simulation](#)
- [N42. Focus Session: Supercooled and Nanoconfined Water I](#)
- [N43. Focus Session: Protein Misfolding and Aggregation III](#)
- [N44. Focus Session: Translocation through Nanopores II](#)
- [N45. Focus Session: Cell Mechanics I](#)
- [N46. Detectors, Sensors, and Transducers](#)
- [N47. Invited Session: American Science and America's Future](#)

[Session P](#)

- [P1. Graduate Student Lunch with the Experts](#)

[Session Q](#)

- [Q1. Poster Session II \(Polymer Physics Poster 11:15-2:15; all other posters 2:00 - 5:00PM\)](#)

[Session R](#)

[R0. Kavli Foundation Special Session: Forefront Physics for Real World Problems: Energy, Climate, and the Environment](#)

- [R1. Invited Session: Controlling Magnetism Without Magnetic Fields](#)
- [R2. Invited Session: New Developments in Organic Spintronics](#)
- [R3. Invited Session: Nonequilibrium Relaxation and Aging in Materials](#)
- [R4. Topological insulators: Nanostructures and Possible Applications: Transport phenomena](#)
- [R5. Graphene: Transport and Optical Properties: THz and Plasmons](#)
- [R6. Focus Session: Graphene - Defects, Edges, Theory](#)
- [R7. Si and Other Semiconductors](#)
- [R8. Correlated Electron Magnetism](#)
- [R9. Invited Session: Advances in Condensed Matter Physics in Latin America](#)
- [R10. Invited Session: New Platforms for Non-Abelian Statistics Majoranas and Beyond](#)
- [R12. Focus Session: Thermoelectrics Phonons and Heat Conduction](#)
- [R13. Focus Session: Topological Materials - Surface Microscopy and Spectroscopy](#)
- [R14. Focus Session: Magneto-thermal Transport and Spin Current in Insulators](#)
- [R15. Focus Session: Spin/charge in Frustrated Lattices](#)
- [R16. Focus Session: Magnetic Thin Films](#)
- [R17. Focus Session: Manganite Heterostructures](#)
- [R18. Focus Session: Spin-Dependent Phenomena in Semiconductors - GaMnAs](#)
- [R19. Kondo Screening - Different Aspects](#)

[R20. Focus Session: Electron, Ion, and Exciton Transport in Nanostructures - Modeling and Electrical Characterization](#)

[R21. Focus Session: Coupling Phenomena in Oxides and Optical and Electronic Properties](#)

[R22. Plasmonics and Optical Interactions in Structured Materials](#)

[R23. Fractional Quantum Hall Theory II](#)

[R24. Focus Session: Recent Developments in Density Functional Theory I](#)

[R25. Focus Session: Computational Studies of Heterostructures](#)

[R26. Foundations of Quantum Theory](#)

[R27. Focus Session: Quantum Error Correction and Decoherence Control II](#)

[R28. Interfaces](#)

[R29. Granular Materials: Phases, Flow, and Rheology](#)

[R31. Focus Session: Assembly & Function of Biomimetic & Bioinspired Materials II](#)

[R32. Focus Session: Polymer Liquids and Glasses](#)

[R33. Focus Session: Organic Electronics and Photonics - Transport in Small Molecules](#)

[R34. Thin Films of Block Copolymers and Hybrid Materials: Hierarchical Structures](#)

[R35. Novel Superconductors I](#)

[R36. Superconducting Proximity Effects: Mesoscopic and Related](#)

[R37. Focus Session: Fe-based Superconductors: Nematicity and Related Phenomena](#)

[R38. Focus Session: Scalable Technologies for Photovoltaics I](#)

[R39. Pattern Formation and Nonlinear Dynamics](#)

[R40. Focus Session: Growth and Pattern Formation on Surfaces](#)

[R41. Casimir Forces](#)

[R42. Colloids and Interfaces](#)

[R43. Electron Transfer, Charge Transfer and Transport](#)

[R44. Nucleic Acids: Structure, Function, Protein Interactions](#)

[R45. Focus Session: Physics of the Cytoskeleton II](#)

[R46. Invited Session: Keithley Session: Enabling Sensitive Measurements Beyond the Standard Quantum Limit](#)

[R47. Invited Session: Simulation of Interfaces in Two-Fluid Flows](#)

[Session S](#)

[S19. Funding Opportunities in Europe for Creative Minds from Anywhere in the World](#)

[S22. The Status of NSF-DMR in FY13](#)

[S26. DCOMP Business Meeting](#)

[S48. Special Evening Event Hosted by the Editors of Physics](#)

[S50. A Staged Reading of the Play: Farm Hall](#)

[Session T](#)

[T1. Invited Session: Superfluids under Nanoscale Confinement](#)

[T2. Invited Session: Valley Polarization Physics: Transition Metal Dichalcogenides and Other](#)

[T3. Invited Session: From Cells to Tissues: The Material Properties of Living Matter](#)

[T4. Invited Session: Physics and Applications of Transparent Conducting Oxides](#)

[T5. Graphene: Transport and Optical Phenomena: Raman and Phonons](#)

[T6. Focus Session: Graphene - Heterostructures, Overlayers](#)

[T7. Focus Session: Carbon Nanotubes: Transport and Electronic Properties](#)

[T8. Carbon Nanostructures: Transport and Optical Phenomena](#)

[T9. Invited Session: Thermalization and Non-Equilibrium Dynamics in Isolated Quantum Systems](#)

[T10. Invited Session: Superconducting Qubits](#)

[T11. Invited Session: Self-Assembly, Physical Properties and Functionalities of Amyloid Fibrils](#)

[T12. Focus Session: Thermoelectrics Materials I](#)

[T13. Focus Session: Topological Materials - Quasi 1-dimensional](#)

[T14. Focus Session: Magnetic Vortices](#)

[T15. Focus Session: Spin Ice and Weakly Disordered Pyrochlores](#)

[T16. Climate Physics / Instabilities and Turbulence](#)

[T17. Magnetic Alloys and Multilayers](#)

[T18. Focus Session: Spin-Dependent Phenomena in Semiconductors - Magnetic Semiconductors](#)

[T19. Metal-Insulator Transitions I](#)

[T20. Focus Session: Electron, Ion, and Exciton Transport in Nanostructures - Resistive Switching Phenomena](#)

[T21. Focus Session: Lattice Dynamics and Surface Chemistry](#)

[T22. Strongly Correlated Electron Theory III](#)

[T23. Semiconductors: Thermodynamic & Transport Properties \(Experimental\)](#)

[T24. Focus Session: Recent Developments in Density Functional Theory II](#)

[T25. Superconducting Qubits: Qubit Design](#)

[T26. Focus Session: Semiconductor Qubits - Charge Qubits, Measurement, and Noise](#)

[T27. Focus Session: Superselection and Quantum Reference Frames](#)

[T28. Focus Session: Shells, Plates, and Thin Films](#)

[T29. Focus Session: Jamming: Marginal Solids I](#)

[T30. Disordered and Glassy Systems \(non-polymeric\)](#)

[T31. Biopolymers: Dynamics of Molecules Under Confinement, Networks, and Proteins](#)

[T32. Focus Session: Charged and Ion Containing Polymers](#)

[T33. Focus Session: Organic Electronics and Photonics - Transport in Polymers](#)

[T34. Thin Films of Block Copolymers and Hybrid Materials: Directed Assembly II](#)

[T35. HTSC: Mostly Superconductor-insulator Transition and Quantum Oscillations](#)

[T36. Ruthenates, Iridates, and p-wave Superconductivity](#)

[T37. Focus Session: Fe-based Superconductors: Spectroscopic Probes](#)

[T38. Renewable Fuels](#)

[T39. Metals Alloys and Metallic Structures](#)

[T40. Strongly Interacting Quantum Gases](#)

[T41. Focus Session: Nano/Optomechanics III](#)

[T42. Focus Session: Supercooled and Nanoconfined Water II](#)

[T43. Liquid and Solid Interfaces](#)

[T44. Focus Session: Intrinsically Disordered Proteins](#)

[T45. Focus Session: Physics of Cancer I](#)

[T46. Focus Session: Advances in Scanned Probe Microscopy 1: Scanning Probe Spectroscopy & Novel Applications to C-based Systems](#)

[T47. Invited Session: The Effect of Electric Fields on Magnetism](#)

[Session U](#)

[U1. Invited Session: Hidden Order in URu₂Si₂ and Possibly Related Compounds](#)

[U2. Invited Session: Topological Insulators: Surface State Transport](#)

[U3. Invited Session: Application of the First-Principles and Atomistic Methods to Nuclear Detection Materials](#)

[U4. Invited Session: Quantum Reservoir Engineering and Feedback](#)

[U5. Graphene: Transport and Optical Phenomena: Mesoscopics and Harmonic Generation](#)

[U6. Focus Session: Graphene - Intercalation, Doping, Characterization](#)

[U7. Focus Session: Carbon Nanotubes: Devices](#)

[U8. Focus Session: Scanning Tunneling Microscopy of Graphene](#)

[U9. Three Dimensional Topological Insulators: Chalcogenides and New Materials](#)

[U10. Invited Session: Science in the New Administration](#)

[U11. Invited Session: New Laser Techniques for Imaging and Probing at the Nanoscale](#)

[U12. Focus Session: Thermoelectrics Materials II](#)

[U13. Topological Insulators: Bi₂Se₃ and Bi₂Te₂Se](#)

[U14. Focus Session: Quantum Dynamics in Spin Ice](#)

[U15. Focus Session: The Physics of Climate](#)
[U16. Focus Session: Magnetic Molecules and Antiferromagnetic Chains](#)
[U17. Focus Session: Femtoscale Multiferroics](#)
[U18. Focus Session: Spin-Dependent Phenomena in Semiconductors - Spin Seebeck and Magneto-optics](#)
[U19. Metal-Insulator Transitions II](#)
[U20. Focus Session: Mesoscopics - Preparation, Superconductivity and Magnetism](#)
[U21. Nanotechnology Applications: Advances in Sensors and Therapies](#)
[U22. Optical Properties of Nanowires](#)
[U23. Semiconductors: Theory and Spectra I](#)
[U24. Focus Session: Recent Developments in Density Functional Theory III](#)
[U25. Superconducting Qubits: Qubit-Field Interactions and Qubit Theory](#)
[U26. Focus Session: Semiconductor Qubits - Impurity Complexes](#)
[U27. Quantum Entanglement: Theory and Experiment](#)
[U28. Focus Session: Tunable Materials](#)
[U29. Focus Session: Jamming: Marginal Solids II](#)
[U30. Glassy Materials: Colloids, Traffic, Disordered Crystals, Etc.](#)
[U31. Focus Session: Assembly & Function of Biomimetic & Bioinspired Materials III](#)
[U32. Charged Polymers and Ionic Liquids](#)
[U33. Focus Session: Organic Electronics and Photonics - Organic Photovoltaics I - Theory and Processing](#)
[U34. Thin Films, Surfaces and Interfaces I](#)
[U35. Focus Session: Search for New Superconductors III](#)
[U36. Electron Phonon Superconductivity and Isotope Effect](#)
[U37. Focus Session: Fe-based Superconductors: Tunneling Spectroscopy](#)
[U38. Novel Photophysics and Transport in NanoPV II](#)
[U39. Metals: Alloys and Actinide Compounds](#)
[U40. Non-equilibrium Cold Atom Systems](#)
[U41. Quantum Simulation in Hybrid Systems \(and Nano/Optomechanics IV\)](#)
[U42. Focus Session: Supercooled and Nanoconfined Water III](#)
[U43. Molecules, Clusters, and Complexes](#)
[U44. Focus Session: Physics of Single-Cell Heterogeneity](#)
[U45. Focus Session: Cell Mechanics II](#)
[U46. Focus Session: Advances in Scanned Probe Microscopy 2: High Frequencies and Optical Techniques](#)
[U47. Invited Session: Controlling Biological Networks](#)

[Session V](#)
[V1. Poster Session III \(1:00 - 4:00PM\)](#)

[Session W](#)
[W1. Invited Session: Superconductivity at High Pressure](#)
[W2. Invited Session: Theory of Interacting Topological Insulators](#)
[W3. Invited Session: Quantum Foundations](#)
[W4. Invited Session: Start-ups and Small Businesses: Success Stories and Tool Kits](#)
[W5. Focus Session: Graphene: Transport and Optical Phenomena: Nanostructures](#)
[W6. Focus Session: Graphene on SiC: Synthesis and Properties](#)
[W7. Focus Session: Carbon Nanotubes: Optical Properties](#)
[W8. Topological Insulators: Theory III](#)
[W9. Invited Session: Physics of Next Generation DNA Sequencing](#)
[W10. Invited Session: Many Body Physics in Quantum Gases](#)
[W11. Invited Session: Polymer Based Soft Materials: Industrial Applications](#)
[W12. Focus Session: Thermoelectrics Nanomaterials I](#)
[W13. Topological Insulators: Bi₂Se₃, Pure and Chemically Doped](#)

[W14. Focus Session: Magnetic Domains](#)
[W15. Focus Session: Theory of Kagome Magnetism](#)
[W16. Focus Session: Biomagnetics, Magneto-Optics, and Ultrafast Effects](#)
[W17. Focus Session: CMR Manganites](#)
[W18. Focus Session: Spin-Dependent Phenomena in Semiconductors - Dynamic and Nuclear Effects](#)
[W19. Holography and Higgs Physics in Condensed Matter](#)
[W20. Focus Session: Electron, Ion, Exciton Transport in Nanostructures: Charge Transport in Functional Nanostructures](#)
[W21. Optoelectronics & Photonics](#)
[W22. Transparent Conductors, Titania, and Other Oxides](#)
[W23. Semiconductors: Theory & Spectra II](#)
[W24. Focus Session: Configuration interaction Quantum Monte Carlo techniques](#)
[W25. Classical Monte Carlo and Molecular Dynamics: Methods and Applications](#)
[W26. Focus Session: Semiconductor Qubits - Progress in Si](#)
[W27. Focus Session: Superconducting Qubits: Quantum Computing Architectures](#)
[W28. Focus Session: Soft-Matter, Biology, & Bioinspiration](#)
[W29. Straight-Up Jamming](#)
[W30. Nonlinear Dynamics](#)
[W31. Focus Session: Understanding Fluctuation and Correlation Effects in Polymers](#)
[W32. Focus Session: Micro/Nanofluidics I](#)
[W33. Focus Session: Organic Electronics and Photonics - Organic Photovoltaics II - Efficiency, Stability, and Interfaces](#)
[W34. Thin Films, Surfaces and Interfaces II](#)
[W35. Novel Superconductors II](#)
[W36. Focus Session: Fe-based Superconductors: Synthesis and Characterization](#)
[W37. Focus Session: Fe-based Superconductors: General Theory](#)
[W38. Focus Session: Novel Photophysics and Transport in NanoPV III](#)
[W39. Computational Fluid Dynamics](#)
[W40. Quantum Information in AMO Physics](#)
[W41. Bose Gauge Fields](#)
[W42. Focus Session: Supercooled and Nanoconfined Water IV](#)
[W43. Chemical Physics of Graphene and Other Crystals](#)
[W44. Focus Session: The Physics of Behavior](#)
[W45. Physics of Bacteria](#)
[W46. Focus Session: Advances in Scanned Probe Microscopy III: Novel Approaches and Ultrasensitive Detection](#)
[W47. Invited Session: The Spread of Cancer and the Tumor Microenvironment](#)
[Session X](#)
[X1. Nobel Prize Session: 2012 Nobel Prize Perspectives](#)
[Session Y](#)
[Y1. Invited Session: New Perspectives on Kondo Systems](#)
[Y2. Invited Session: Magnetism and non-Fermi Liquid in Heavy Fermion Metals](#)
[Y3. Invited Session: New Directions in Fractional Quantum Hall Phenomena](#)
[Y5. Graphene: Transport and Optical Phenomena: Heterostructures](#)
[Y6. Nanotubes and Nanowires \(non-carbon\): Transport and Optical Phenomena](#)
[Y7. Focus Session: Carbon Nanotubes: Sensor Applications and Gas Absorption](#)
[Y8. Electron-electron Interactions and Unconventional Structures](#)
[Y9. Invited Session: Spin Mechanics](#)
[Y10. Invited Session: Advances in Actinide Measurement Techniques](#)
[Y11. Glassy and Amorphous Systems, Including Quasicrystals followed by Epitaxial Growth and Structure of Oxides](#)

[Y12. Focus Session: Thermoelectrics Nanomaterials II](#)
[Y13. Topological Insulators: Thin Films and Interfaces](#)
[Y14. Focus Session: Thermal and Magnon Spin Currents](#)
[Y15. Focus Session: Kagome Materials and Experiments](#)
[Y16. Magnetic Theory II](#)
[Y17. Focus Session: Magnetic Metal Insulator Transitions](#)
[Y18. Focus Session: Spin-Dependent Phenomena in Semiconductors - Quantum Dots](#)
[Y19. Charge Density Wave Order](#)
[Y20. Focus Session: Electron, Ion, Exciton Transport in Nanostructures: Quantum Dots and Low-dimension Structures](#)
[Y21. Semiconductors: Thermodynamic & Transport Properties \(Theory\)](#)
[Y22. Quantum Solids - He4](#)
[Y23. Semiconductors: Thermodynamic & Optical Properties I](#)
[Y24. Focus Session: Advances in Fermionic Simulators](#)
[Y25. Focus Session: Novel Theories and Methods in Computational Physics](#)
[Y28. Rods & Buckling](#)
[Y29. Complex Networks and Their Applications I](#)
[Y30. Jamming & Shearing](#)
[Y31. Phase Behavior of Copolymers](#)
[Y32. Polymer Nanocomposites III](#)
[Y33. Focus Session: Organic Electronics and Photonics - Morphology and Structure I](#)
[Y34. Focus Session: Microfluidics, Nanofluidics Applications](#)
[Y35. Low TC: 2-D Superconductor-insulator Transition](#)
[Y36. Novel Superconductors III](#)
[Y37. Focus Session: Fe-based Superconductors: Vortices and Critical Fields](#)
[Y38. Focus Session: Scalable Technologies for Photovoltaics II](#)
[Y39. Swimming, Motility and Locomotion](#)
[Y40. Surfaces, Interfaces, and Thin Films: Oxides](#)
[Y42. Focus Session: Single Molecule Studies of Nucleotides and Nanomachines](#)
[Y43. Spectroscopy, Photochemistry, and Electrochemistry](#)
[Y44. Focus Session: Novel Experimental Techniques for Probing Cellular Mechanics](#)
[Y45. Focus Session: Physics of Cancer II](#)
[Y46. Focus Session: Physics of Proteins III](#)
[Y47. Invited Session: Controlling and Exploiting Topological Defects in Liquid Crystals](#)

[Session Z](#)
[Z1. Invited Session: Time- and Angle- Resolved Photoemission Spectroscopy of Complex Materials](#)
[Z2. Invited Session: Jamming and Rheology of Disordered Systems](#)
[Z3. Invited Session: Integration of Research and Teaching Excellence: Cottrell Scholars](#)
[Z5. Focus Session: Graphene: Transport and Optical Phenomena: Hot Electrons and Photocurrents](#)
[Z6. Nanotubes and Nanowires \(non-carbon\): Other Phenomena](#)
[Z7. Focus Session: Carbon Nanotubes: Synthesis](#)
[Z8. Topological Insulators: Transport and interfaces](#)
[Z10. Invited Session: Elastic Instabilities and Pattern Formation in Structureless Solids](#)
[Z11. Invited Session: Nonlinear Mechanics of Glassy Polymers](#)
[Z12. Focus Session: Thermoelectric Magnetothermoelectric Magnetocaloric](#)
[Z14. Permanent Magnet Materials](#)
[Z15. Focus Session: Frustrated Systems: Artificial and Disordered](#)
[Z17. Focus Session: Orbital Order](#)
[Z18. Focus Session: Spin-torque and Related Magnetic Oscillations](#)
[Z19. f-Electron System Properties - Theory & Experiment](#)

[Z21. Solid State Lighting and Other Semiconductors](#)
[Z22. He3 - He4 Quantum Fluids](#)
[Z23. Semiconductors: Thermodynamic & Optical Properties II](#)
[Z24. Quantum Many-Body Systems and Methods II](#)
[Z28. Focus Session: Wrinkling](#)
[Z29. Complex Networks and Their Applications II](#)
[Z31. New Computational Methods in Polymer & Soft Matter Physics](#)
[Z32. Micro/Nanofluidics II](#)
[Z33. Focus Session: Organic Electronics and Photonics - Morphology and Structure II](#)
[Z34. Polymeric Glasses](#)
[Z42. Focus Session: Single Molecule Studies of Protein Nanomachines](#)
[Z43. Catalysis and Chemical Reaction Dynamics](#)
[Z44. Focus Session: Cell Mechanics III](#)
[Z45. Focus Session: From Molecules to Cells](#)
[Z46. Focus Session: Physics of Proteins IV](#)
[Z47. Invited Session: Active, Non-Equilibrium Dynamics in Complex Cellular Networks](#)