

# March Meeting 2011

## Session Index

### [Session 1A](#)

[1A. Industrial Physics Forum: History, Current Status, Future Prospects](#)

### [Session 1B](#)

[1B. Industrial Physics Forum: Large-Scale Applications](#)

### [Session A](#)

[A1. Silicon Qubits](#)

[A2. Compressibility and Transport in Bilayer Graphene](#)

[A3. Experimental Studies of 5/2 Fractional Quantum Hall Effect](#)

[A4. Nanostructures in Polymer-base Photovoltaics](#)

[A5. Industrial Physics Forum: Small-Scale Applications](#)

[A6. Great Advances in Computational Physics: Past, Present and Future](#)

[A7. Prize Session: Single Molecule Biophysics I: Recent Advancements in Technology and Applications](#)

[A8. APS/GSNP/DCMP Prize Session: Heineman, Onsager, IUPAP/C10](#)

[A9. Micro-fluidics](#)

[A10. Structure and Morphology of Oxide Surfaces and Interfaces](#)

[A11. Semiconductor Growths](#)

[A12. Focus Session: Electricity-to-Light Conversion: Solid State Lighting I](#)

[A13. Focus Session: Polymer Colloids: Structure, Function, and Dynamics I](#)

[A14. Focus Session: New Ways of Communicating Physics](#)

[A15. Focus Session: Spins in Semiconductors - Spin Dynamics](#)

[A16. Focus Session: Magnetic Nanostructures I](#)

[A17. Focus Session: Bulk Properties of Complex Oxides - Manganites I](#)

[A18. Focus Session: Low D/Frustrated Magnetism - Pyrochlore, et al.](#)

[A20. Focus Session: Physics of Energy Storage Materials I -- Cathodes and Electrolytes](#)

[A21. Focus Session: Advances in Scanned Probe Microscopy I -- Novel Tip and Material](#)

### [Control](#)

[A22. Charge Density Wave Materials](#)

[A23. Superconductivity: ARPES on BSCCO and SRO](#)

[A24. Computational Methods I: Numerical Methods for Strongly Correlated Systems](#)

[A25. Superconductivity: Phases and Phase Transitions](#)

[A26. Focus Session: Iron Based Superconductors -- Theory](#)

[A27. Focus Session: Quantum Optics with Superconducting Circuits I](#)

[A28. Focus Session: Carbon Nanotubes and Related Materials: Fundamentals and Applications](#)

[A29. Quantum Communication, Theoretical Entanglement, and Cryptography](#)

[A30. Graphene: Growth, Properties and Devices](#)

[A31. Focus Session: van der Waals Bonding in Advanced Materials: Fundamentals and Simple](#)

### [Systems](#)

[A32. Focus Session: Optical Properties of Nanostructures and Metamaterials I](#)

[A33. Focus Session: Dielectric, Ferroelectric, and Piezoelectric Oxides: Piezoelectrics, Oxides on Semiconductors, and Applications](#)

[A34. Focus Session: Interfaces in Complex Oxides - LaAlO<sub>3</sub>/SrTiO<sub>3</sub> Transport](#)

[A35. Topological Insulators: Growth](#)

[A36. Focus Session: Scalable Technologies for Terawatt Photovoltaics](#)

[A37. Focus Session: Graphene: Growth, Characterization and Devices: Theory and Transport](#)

[A38. Focus Session: Ultrafast Dynamics and Imaging I](#)

[A39. Focus Session: Energy Future: Biological and Biometric Systems](#)

[A40. New Experimental, Theoretical, and Computational Methods in Polymer and Soft Matter Physics](#)

[A41. Focus Session: Active Biopolymers and Biomaterials](#)

[A42. Focus Session: Directed Assembly of Hybrid Nanomaterials](#)

[A43. Focus Session: Thin Film Block Copolymers I](#)

[A44. Friction, Adhesion, and Fracture of Polymers](#)

[A45. Focus Session: Exploring Quantum Phases in Cold Atom Systems](#)

[Session B](#)

[B1. Quantum Devices Based on Semiconductor Nanowires](#)

[B1. Quantum Devices Based on Semiconductor Nanowires](#)

[B2. Many-Body Effects for the Excited States of Graphene](#)

[B3. The History of Superconductivity from its Discovery by Kammerlingh Onnes in 1911](#)

[B4. Hybrid Nanomaterials Assembly](#)

[B5. Mentoring Undergraduate Research](#)

[B6. Few-body Aspects of Cold Atomic Gases](#)

[B7. Superconductivity in Accelerators](#)

[B8. Critical Materials for Global Science and Technology](#)

[B9. Nanofluidics](#)

[B10. SPS Undergraduate Research I](#)

[B11. Compound and Oxide Semiconductors](#)

[B12. Focus Session: Dopants and Defects in Semiconductors: Compound Semiconductors I](#)

[B13. Focus Session: Polymer Colloids: Structure, Function, and Dynamics II](#)

[B14. Applications of Statistical and Nonlinear Physics to Social Systems and GSNP Student](#)

[Speaker Award Talks](#)

[B15. Focus Session: Spins in Semiconductors - Spin Currents I](#)

[B16. Focus Session: Magnetic Nanostructures II](#)

[B17. Focus Session: Bulk Properties of Complex Oxides - Manganites II](#)

[B18. Focus Session: Low D/Frustrated Magnetism - Quantum Magnetism](#)

[B19. Focus Session: Spin Transport & Magnetization Dynamics in Metals II](#)

[B20. Focus Session: Physics of Energy Storage Materials II -- Anodes and Capacitors](#)

[B21. General Theory](#)

[B22. Correlated Electrons Including "115" Materials](#)

[B23. Focus Session: Iron Based Superconductors -- Electronic Structure, Theory and](#)

[Spectroscopy](#)

[B24. Focus Session: Multiscale Modeling - Methodology and applications](#)

[B25. Superconductivity: Spin properties, Structure and Dynamics](#)

[B26. Focus Session: Iron Based Superconductors -- Growth](#)

[B27. Focus Session: Superconducting Qubits - Measurement](#)

[B28. Focus Session: Carbon Nanotubes and Related Materials: Growth, Sorting and Properties](#)

[B29. Advances in Ion Trap Quantum Computation](#)

[B30. Graphene: Transport and Correlations](#)

[B31. Focus Session: van der Waals Bonding in Advanced Materials: Applications to Systems](#)

[and Behaviors](#)

[B32. Focus Session: Optical Properties of Nanostructures and Metamaterials II](#)

[B33. Focus Session: Dielectric, Ferroelectric, and Piezoelectric Oxides: Electronic Conduction](#)

[and Defects](#)

[B34. Focus Session: Interfaces in Complex Oxides - Spectroscopy and Growth](#)

[B35. Topological Insulators: Theory I](#)

[B36. Photovoltaics: Novel Approaches and System Issues](#)

[B37. Focus Session: Graphene Growth, Characterization, and Devices: Devices and Contacts](#)

[B38. Earle K. Plyler Prize Session I: Spectroscopy](#)

[B39. Focus Session: Single Molecule Biophysics II: Novel Single Molecule Approaches to](#)

## Biology

B40. Lipid Bilayers and Biological Membranes: Dynamics and Thermodynamics

B41. Focus Session: Supramolecular Self-Assembly--Controlling Network and Gel Formation I

B42. Polyelectrolytes, Conformations, Assembly, and Dynamics

B43. Focus Session: Polymers for Energy Storage and Conversion -- Nanoscale Structure in

## Polymer-based Photovoltaics

B44. Physics of Copolymers I

B45. Optomechanics at the Quantum Limit

## Session C

C1. Poster Session I (2:00pm - 5:00pm)

## Session D

D1. New Developments in Quantum Criticality

D2. Topological Surface States

D3. Materials for Energy

D4. Simulations Meet Experiments on Ultracold Quantum Gases

D5. Industrial Physics Forum: Frontiers in Physics

D6. Physics of Proteins I: Unifying Principles and Concepts

D7. From Molecular Control to Spatiotemporal Patterns in Bacteria and Beyond

D8. Spin Currents

D9. Patterns, Nonlinear Dynamics followed by General Fluid Dynamics

D10. SPS Undergraduate Research II

D11. Thermal Properties in Semiconductors and Nanostructures

D12. Focus Session: Dopants and Defects in Semiconductors: Compound Semiconductors II

D13. Statistical and Nonlinear Physics: General

D14. Systems Far From Equilibrium

D15. Electronic Structure I

D16. Magnetic Imaging and Characterization

D17. Focus Session: Bulk Properties of Complex Oxides - Cobaltites

D18. Focus Session: Low D/Frustrated Magnetism - Kagome Lattices

D19. Low Dimensional Magnetism and Spin Tunneling

D20. Bionanotechnology

D21. Focus Session: Novel Instrumentation & Measurements for Biomedical Research

D22. Metal Insulator Transition in VO<sub>2</sub>

D23. Focus Session: Search for New Superconductors I: Exploring Emergent Phases

D24. Focus Session: Quantum Transport Simulations and Computational Electronics --

## Nanostructures

D25. Superconductivity: Vortex Phenomena I

D26. Focus Session: Iron Based Superconductors -- Electronic Structure

D27. Focus Session: Superconducting Qubits - Gates and Algorithms

D28. Focus Session: Graphene Growth, Characterization, and Devices: Metal Substrates

D29. Quantum Computing and Simulation I

D30. Graphene: Hydrogenation and Defects

D31. Focus Session: van der Waals Bonding in Advanced Materials: Applications to Advanced and Functional Materials

D32. Focus Session: Optical Properties of Nanostructures and Metamaterials III

D33. Focus Session: Dielectric, Ferroelectric, and Piezoelectric Oxides: Multiferroics

D34. Focus Session: Interfaces in Complex Oxides - Photo and Electric Field Induced Devices

D35. Topological Insulators: Theory II

D36. Photovoltaics: Nanostructured Materials

D37. Focus Session: Graphene Structure, Dopants, and Defects: Strain Engineering I

D38. Earle K. Plyler Prize Session II: Spectroscopy

D39. Physics of Physiological Systems

[D40. Lipid Bilayers and Biological Membranes: Peptide Interactions](#)

[D41. LeRoy Apker Prize Session: Clusters and Nanoscale Systems](#)

[D42. Colloids Theory & Computation, Emulsions, and Foams](#)

[D45. Many Body Physics of Quantum Gases in Reduced Dimension](#)

#### [Session E](#)

[E1. APS Prizes and Awards Ceremonial Session](#)

#### [Session F](#)

[F1. Welcome Reception](#)

#### [Session G](#)

[G1. Physics Community Outreach: Small Wonders: Bringing Nano to the Public Through Museum Partnership](#)

#### [Session H](#)

[H1. Spin-Triplet Supercurrents in Superconductor/Ferromagnet/Superconductor Josephson Junctions](#)

[H2. New Materials for Spin Quantum Hall Effect and Topological Insulators](#)

[H3. Collective Effects in Molecular Magnets](#)

[H4. Polymer Physics Prize](#)

[H5. Drowning in Carbon: The Imperative of Nuclear Power](#)

[H6. Ultracold Molecules and Quantum Many Body Physics](#)

[H7. Physics of Proteins II: Dynamics and Functions](#)

[H8. Science, Art and Culture](#)

[H9. Colloids: Experimental](#)

[H10. Semiconductor Surfaces and Interfaces](#)

[H11. SPS Undergraduate Research III](#)

[H12. Focus Session: Dopants and Defects in Semiconductors: Silicon](#)

[H13. Focus Session: Jamming Theory and Experiment I](#)

[H14. Focus Session: Friction, Fracture and Deformation Across Length Scales I: Sliding Friction and Asperities](#)

[H15. Focus Session: Spins in Semiconductors - Ferromagnetic Semiconductors](#)

[H16. Focus Session: Spins in Carbon-Based Materials-- Spin Valves and Interfaces](#)

[H17. Focus Session: Bulk Properties of Complex Oxides - Ferrites](#)

[H18. Electronic Structure II](#)

[H19. Focus Session: Spin Transport & Magnetization Dynamics in Metals III](#)

[H20. Focus Session: Physics of Energy Storage Materials III -- Hydrogen Storage Adsorbents](#)

[H21. Focus Session: Advances in Scanned Probe Microscopy II -- High Frequencies and](#)

#### [Optical Techniques](#)

[H22. Heavy Fermions](#)

[H23. Superconductivity: Mainly ARPES](#)

[H24. Focus Session: What is Computational Physics? I](#)

[H25. Superconductivity: Tunneling Spectroscopy](#)

[H26. Focus Session: Iron Based Superconductors -- Anisotropic Spin Dynamics](#)

[H27. Focus Session: Semiconductor Qubits- Silicon Spin Qubits](#)

[H28. Focus Session: Carbon Nanotubes and Related Materials: Devices I](#)

[H29. Focus Session: Quantum Information for Quantum Foundations - Axiomatics and Toy](#)

#### [Models](#)

[H30. Graphene: Synthesis and Characterization](#)

[H31. Focus Session: Materials at High Pressure I: Molecular and Simple Materials](#)

[H32. Focus Session: Photonic Crystals, Metamaterials and Other Optical Systems](#)

[H33. Focus Session: Dielectric, Ferroelectric, and Piezoelectric Oxides: Multiferroics &](#)

#### [Magnetolectrics I](#)

[H34. Focus Session: Atomic, Molecular, and Memristive Junctions](#)

[H35. Topological Insulators: General](#)

[H36. Photovoltaics: Compound Semiconductors and Organics](#)  
[H37. Focus Session: Graphene Structure, Dopants, and Defects: Transport I](#)  
[H38. Focus Session: Quantum Coherence in Biology I](#)  
[H39. Focus Session: Physics of Cancer](#)  
[H40. Multi-cellular Processes and Development](#)  
[H41. Irving Langmuir Prize Session: Ultrafast Dynamics](#)  
[H42. Focus Session: Polymers for Energy Storage and Conversion -- Physics of Ion Conductivity in Polymers](#)  
[H43. Focus Session: Thin Film Block Copolymers II](#)  
[H44. Surfaces, Interfaces, and Polymer Thin Films I](#)  
[H45. Exotic Quantum Phases in Optical Lattices: FFLO, P-band Physics, and Beyond](#)

[Session J](#)  
[J1. Toward Single Spin Electronics](#)  
[J2. Force Probes of Materials' Structure and Function](#)  
[J3. The Kavli Foundation Special Symposium: Nobelist Perspectives on 100 Years of Superconductivity](#)  
[J4. Interactions Between Pore Forming Peptides and Membranes](#)  
[J5. Hildred Blewett Scholars and their Research followed by Panel Discussion](#)  
[J6. The Use of GPUs in Computational Physics](#)  
[J7. The Dynamics of Co-Evolving and Interdependent Networks](#)  
[J8. Physics Education Research in Upper-division Physics Courses](#)  
[J9. Liquid Crystals: Nematics, Lyotropics and Vesicles](#)  
[J10. Surface and Interfaces with Metals](#)  
[J11. Fractional Quantum Hall Effect I](#)  
[J12. Focus Session: Electricity-to-Light Conversion: Solid State Lighting II](#)  
[J13. Focus Session: Jamming Theory and Experiment II](#)  
[J14. Focus Session: Physics of Active Materials](#)  
[J15. Focus Session: Spins in Semiconductors - Spin Currents II](#)  
[J16. Focus Session: Magnetic Nanostructures III](#)  
[J17. Focus Session: Bulk Properties of Complex Oxides - Ferrites + Vanadates](#)  
[J18. Focus Session: Low D/Frustrated Magnetism - Molecular Magnets I](#)  
[J19. Focus Session: Spin Transport & Magnetization Dynamics in Metals IV](#)  
[J20. Optoelectronic Devices & Applications](#)  
[J21. Focus Session: Imaging and Modifying Materials at the Limits of Space and Time Resolution I](#)  
[J22. Theory of Non Fermi Liquids](#)  
[J23. Superconductivity: Fluctuation Phenomena](#)  
[J24. Focus Session: Multiscale Modeling: Structural Materials](#)  
[J26. Focus Session: Iron Based Superconductors -- Vortices & High Fields](#)  
[J27. Focus Session: Quantum Optics with Superconducting Circuits II](#)  
[J28. Focus Session: Computational Materials Design - Data-Driven](#)  
[J29. Focus Session: Quantum Information for Quantum Foundations - Structures in Hilbert Space](#)  
[J30. Nanowires & Nanotubes: Electronic Properties](#)  
[J31. Focus Session: Materials at High Pressure II: Elements](#)  
[J32. Focus Session: Electron, Ion, and Exciton Transport in Nanostructures: Nanowires](#)  
[J33. Focus Session: Dielectric, Ferroelectric, and Piezoelectric Oxides: Multiferroics & Magnetoelectrics II](#)  
[J34. Focus Session: Interfaces in Complex Oxides - Microscopy and Local Structure](#)  
[J35. Topological Insulators: Optics](#)  
[J36. Focus Session: Graphene Growth, Characterization and Devices: SiC and Metal Substrates](#)  
[J37. Focus Session: Graphene Growth, Characterization, and Devices: Surface Studies](#)

- [J38. Focus Session: Ultrafast Dynamics and Imaging II](#)
- [J39. Physics of Proteins III: Folding, Structure and Stability](#)
- [J40. Theory of Clusters and Nanoscale Systems](#)
- [J41. Focus Session: Polymers for Energy Storage and Conversion -- Structure in Organic Semiconductor Blends](#)
- [J42. Padden Award Symposium](#)
- [J43. Physics of Copolymers II](#)
- [J44. Focus Session: Kinetic Control of Solution Assemblies](#)
- [J45. Focus Session: Non-equilibrium Physics with Cold Quantum Gases](#)

#### [Session K](#)

- [K1. Poster Session II \(2:00pm - 5:00pm\)](#)

#### [Session L](#)

- [L1. Recent Advances in Ultrafast Studies of Condensed Matter](#)
- [L2. Single Molecule Transistors and Graphene Quantum Dots](#)
- [L3. Gap Structure of the Ba-122 Iron Based Superconductors](#)
- [L4. Quantum Information: Featured Experiments](#)
- [L5. Topics in Alternative Energy](#)
- [L6. Complexity in Invention: The Strongly Coupled Systems that Contribute to Innovation Success](#)

- [L7. System Biology I: The Physics of Development](#)

- [L8. J. H. Van Vleck: Quantum Theory and Magnetism](#)

- [L9. Micelles and Vesicles I](#)

- [L10. Nanoclusters and Nanowires on Surfaces](#)

- [L12. APS Editorial Q&A: APS and Open Access](#)

- [L13. Focus Session: Jamming Theory and Experiment III](#)

- [L14. Physics Education Research](#)

- [L15. Focus Session: Spins in Semiconductors - Spin Torque and Spin Injection](#)

- [L16. Focus Session: Magnetic Nanostructures: Probing Using Advanced Methods](#)

- [L17. Focus Session: Magnetic Oxide Thin Films - Ferroic and Oxide Tunnel Junctions](#)

- [L18. Focus Session: Low D/Frustrated Magnetism - 2D Lattices](#)

- [L19. Focus Session: Spin Transport & Magnetization Dynamics in Metals V](#)

- [L20. Focus Session: Thermoelectric Materials: Skutterudites, Novel and Nanostructured](#)

#### [Materials](#)

- [L21. Focus Session: Imaging and Modifying Materials at the Limits of Space and Time](#)

#### [Resolution II](#)

- [L22. URu<sub>2</sub>Si<sub>2</sub>](#)

- [L23. Focus Session: Search for New Superconductors II: Towards Theoretical Design](#)

#### [L24. Focus Session: Quantum Transport Simulations and Computational Electronics -- GNRs and QDs](#)

- [L25. Superconductivity: Vortex Phenomena II](#)

- [L26. Focus Session: Iron Based Superconductors -- ARPES](#)

- [L28. Focus Session: Computational Materials Design - Property Optimization](#)

- [L29. Quantum Entanglement](#)

- [L30. Graphene: Thermal Conduction and Phonons](#)

- [L31. Focus Session: Materials at High Pressure III: Electronic Transitions](#)

- [L32. Focus Session: Nano-Optics, Semiconductor and Metal Nanostructures](#)

#### [L33. Focus Session: Dielectric, Ferroelectric, and Piezoelectric Oxides: Lattice Dynamics, Polarons, and Structure](#)

- [L34. Focus Session: Interfaces in Complex Oxides - Heterointerfaces](#)

- [L35. Metals: Alloys and Impurities](#)

- [L36. Focus Session: Graphene Structure, Dopants and Defects: Adsorbates](#)

- [L37. Focus Session: Graphene Structure, Dopants, and Defects: Magnetism](#)

[L38. Focus Session: Quantum Coherence in Biology II](#)

[L39. Focus Session: Single Molecule Biophysics III: Novel Single Molecule Approaches to Biology](#)

[L40. Focus Session: Noisy Dynamics as Survival Strategies and Nanopores](#)

[L41. Condensed Phase Dynamics and Structure](#)

[L42. Dillon Medal Symposium](#)

[L43. Focus Session: Polymers for Energy Storage and Conversion -- Emerging Applications](#)

[L44. Surfaces, Interfaces, and Polymer Thin Films II](#)

[L45. Strongly Correlated Physics with Atoms and Molecules](#)

#### [Session M](#)

[M14. GSNP Business Meeting](#)

[M15. GMAG Business Meeting](#)

[M20. FIAP Business Meeting](#)

[M21. GIMS Business Meeting](#)

[M27. GQI Business Meeting](#)

[M31. GERA Business Meeting](#)

[M38. DBP Business Meeting](#)

[M42. DPOLY Business Meeting](#)

[M50. DCMP Business Meeting](#)

[M51. DMP Business Meeting](#)

[M52. DCP Business Meeting](#)

#### [Session P](#)

[P1. Magnetism and Localization in f Electron Systems](#)

[P2. The Kondo Ground State in Graphene](#)

[P3. FIAP/DCMP/DMP Prize Session: Pake, Adler, IAP](#)

[P4. Kinetic Pathways to Assembly of Polymers, Particles and Biomolecules](#)

[P5. Broader Impact: Partnerships and Resources to Achieve Successful Public and K-12](#)

#### [Outreach and Engagement](#)

[P6. Creating and Probing Exotic Optical Lattices](#)

[P7. System Biology II: The Physics of Morphogenesis](#)

[P8. The Physics, Technology and Future of Robotics](#)

[P9. Liquid Crystals: Smectics, Nano-mixtures](#)

[P10. Focus Session: Growth, Structure, Dynamics, and Function of Nanostructured Surfaces and Interfaces -- Metals](#)

[P11. Electronic Structure: Theory and Spectra I](#)

[P12. Focus Session: Dopants and Defects in Semiconductors: Hyper Doping](#)

[P13. Tutorial for Authors and Referees](#)

[P14. Focus Session: Friction, Fracture and Deformation Across Length Scales II: Plasticity and Rupture](#)

[P15. Focus Session: Spins in Semiconductors - Quantum Computing with Defects](#)

[P16. Focus Session: Magnetic Nanostructures, Vortices & Domain Walls](#)

[P17. Focus Session: Bulk Properties of Complex Oxides - 3d Oxides](#)

[P18. Focus Session: Low D/Frustrated Magnetism - Triangular Lattices](#)

[P19. Focus Session: Spin Transport & Magnetization Dynamics in Metals VI](#)

[P20. Focus Session: Physics of Energy Storage Materials IV -- Complex Hydrides and Methane](#)

[P21. Focus Session: Advances in Scanned Probe Microscopy III - Novel SPM of Spin, Force & Conductance](#)

[P22. Metal-Insulator Phase Transitions I](#)

[P23. Superconductivity: Josephson Effects I](#)

[P24. Focus Session: What is Computational Physics? II followed by Computational Methods: Numerical Methods for Strongly Correlated Systems II](#)

[P25. Superconductivity: Devices and Applications](#)

[P26. Focus Session: Iron Based Superconductors -- Spin Dynamics](#)

[P27. Focus Session: Semiconductor Qubits - Spin Readout, Backaction, and Valley Physics in Silicon](#)

[P28. Carbon Nanotubes: Optical Properties](#)

[P29. Focus Session: Superconducting Qubits](#)

[P30. Nanowires & Nanotubes: Growth & Absorption Kinetics](#)

[P31. Focus Session: Materials at High Pressure IV: Geophysical Materials and Magnetic Transitions](#)

[P32. Optical Properties and Dynamics of Quantum Dots and Quantum Wells](#)

[P33. Focus Session: Dielectric, Ferroelectric, and Piezoelectric Oxides: BiFeO<sub>3</sub>](#)

[P34. Focus Session: Interfaces in Complex Oxides - Transport and Optics](#)

[P35. Topological Insulators: Magnetotransport](#)

[P36. Focus Session: Graphene: Growth, Characterization, and Devices: Electronic Structure](#)

[P37. Focus Session: Graphene Structure, Dopants, and Defects: Strain Engineering II](#)

[P38. Focus Session: Quantum Coherence in Biology III](#)

[P39. Physics of Proteins IV: Folding, Dynamics and Function](#)

[P40. Polymer Melts & Solutions](#)

[P41. Focus Session: Fundamental Issues in Interfacial Charge Transport for Energy](#)

[Applications I](#)

[P42. Focus Session: Organic Electronics and Photonics -- Organic Photovoltaic Devices](#)

[P43. Focus Session: Thin Film Block Copolymers III](#)

[P44. Focus Session: Assembly, Structure, & Instabilities in Polymer Films, Network Films, &](#)

[Interfaces I](#)

[P45. Unitary Fermi Gases and the BCS-BEC Crossover](#)

[Session Q](#)

[Q1. Gapless Spin Liquids](#)

[Q3. The Kavli Foundation Special Symposium: Superconductivity Centennial: Future Research](#)

[Opportunities](#)

[Q4. Macromolecular Crowding Effects in the Cytoplasm](#)

[Q5. The Physics of Confronting Weapons of Mass Destruction: Chemical, Biological and](#)

[Nuclear](#)

[Q6. Hydrogen Storage Materials](#)

[Q7. System Biology III: The Physics of Evolution](#)

[Q8. New Developments in Organic Spintronics](#)

[Q9. Fluid Dynamics at Interfaces](#)

[Q10. Chemisorption and Surface Reactions](#)

[Q11. Fractional Quantum Hall Effect II](#)

[Q12. Focus Session: Dopants and Defects in Semiconductors: Conducting Oxides](#)

[Q13. Glassy Systems and Jamming I](#)

[Q14. Focus Session: Extreme Mechanics: Elasticity and Deformation I](#)

[Q15. Focus Session: Spins in Semiconductors - Quantum Dots and Nuclear Spins](#)

[Q16. Electronic Structure III](#)

[Q17. Focus Session: Bulk Properties of Complex Oxides - Ruthenates](#)

[Q18. Focus Session: Magnetic Oxide Thin Films - Multiferroic Thin Films](#)

[Q19. Ising, Spin Glass, Frustrated Magnets](#)

[Q21. THz and Impedance Spectroscopy](#)

[Q22. Metal-Insulator Phase Transitions II](#)

[Q23. Focus Session: Iron Based Superconductors -- Fermi Topology](#)

[Q24. Focus Session: Multiscale Modeling: Heterogeneous Systems and Interfaces](#)

[Q25. Superconductivity: Transport Properties](#)

[Q26. Focus Session: Iron Based Superconductors -- Optics, Heat Capacity, Thermopower](#)

[Q27. Focus Session: Semiconductor Qubits- Quantum Control](#)



[Q28. Focus Session: Carbon Nanotubes and Related Materials: Devices II](#)  
[Q29. Focus Session: Quantum Information for Quantum Foundations - Experiments and Tests](#)  
[Q30. Graphene: Electron-Electron Interactions](#)  
[Q31. Focus Session: Materials at High Pressure V: Structure Prediction and Complex Materials](#)  
[Q32. Focus Session: Optical Properties of Semiconductor and Metal Nanostructures](#)  
[Q33. Focus Session: Dielectric, Ferroelectric, and Piezoelectric Oxides: Interfaces and Optical](#)

[Properties](#)

[Q34. Focus Session: Interfaces in Complex Oxides - Polar Interfaces](#)  
[Q35. Topological Insulators: Interactions](#)  
[Q36. Focus Session: Graphene Structure, Dopants, and Defects: Nanoparticles](#)  
[Q37. Focus Session: Graphene Structure, Dopants, and Defects: Transport II](#)  
[Q38. Focus Session: Organic Electronics and Photonics -- Morphology in polymer-based solar](#)

[cells](#)

[Q39. Information Processing in Biological Systems](#)  
[Q40. Theoretical Methods and Algorithms for Chemical Physics](#)  
[Q41. Focus Session: Fundamental Issues in Interfacial Charge Transport for Energy](#)

[Applications II](#)

[Q42. Polymer Composites](#)  
[Q43. Focus Session: Translocation through Nanopores I](#)  
[Q44. Focus Session: Dynamics of Polymers-Phenomena due to Confinement](#)  
[Q45. Non-equilibrium Physics with Cold Quantum Gases II](#)

[Session S](#)

[S1. Poster Session III \(1:00pm - 4:00pm\)](#)

[Session T](#)

[T1. Entanglement Spectroscopy](#)  
[T2. Defects and Strain in Graphene](#)  
[T3. DCMP/DMP Prize Session: Buckley, McGroddy, Davisson-Germer](#)  
[T4. Keithly Award Session](#)  
[T5. 20 Years of Quantum Information in Physical Review Letters](#)  
[T6. Theory in Industry](#)  
[T7. Structural and Mechanical Properties of Jammed Amorphous Materials](#)  
[T8. Shaping Regional Identities through Research Funding Policies](#)  
[T9. Flow Instabilities, Turbulence and CFD](#)  
[T10. Focus Session: Growth, Structure, Dynamics, and Function of Nanostructured Surfaces](#)  
[and Interfaces -- Oxides](#)

[T11. Spin and Transport in Low Dimensional Semiconductors](#)  
[T12. Atomic Structures and Mechanical Properties in Semiconductors](#)  
[T13. Focus Session: Transport and Diffusion in Non-equilibrium Systems](#)  
[T14. Focus Session: Extreme Mechanics: Elasticity and Deformation II](#)  
[T15. Focus Session: Spins in Semiconductors - III-V Magnetic Semiconductors](#)  
[T16. Focus Session: Magnetic Nanostructures, Materials & Effects](#)  
[T17. Focus Session: Magnetic Oxide Thin Films - Manganite Thin Films](#)  
[T18. Focus Session: Low D/Frustrated Magnetism - Molecular Magnets II](#)  
[T19. Focus Session: Spin Transport & Magnetization Dynamics in Metals VII](#)  
[T20. Focus Session: Thermoelectric Materials: LAST/TAGS, Heusler, and Silicides](#)  
[T21. Classical and Quantum Monte Carlo](#)  
[T22. Correlated Electrons and Magnetic Phase Transitions](#)  
[T23. Focus Session: Search for New Superconductors III: Reduced Dimensionality](#)  
[T24. Focus Session: Quantum Transport Simulations and Computational Electronics --](#)

[Disorder](#)

[T25. Superconductivity: Theory, Mainly Vortices](#)  
[T26. Focus Session: Iron Based Superconductors -- Magnetic Properties & Phase Diagrams](#)

[T27. Open Quantum Systems and Decoherence](#)

[T28. Graphene: Optical and Transport Properties](#)

[T29. Focus Session: Superconducting Qubits - Coherence and Materials I](#)

[T30. Materials: Synthesis, Growth and Processing \(Bulk & Films\)](#)

[T31. Novel Structural Chemistry & Materials](#)

[T32. Semiconducting Devices & Applications](#)

[T33. Focus Session: Dielectric, Ferroelectric, and Piezoelectric Oxides: Pb-based and novel materials](#)

[T34. Optical and Electronic Properties of Nanocrystals and Wires](#)

[T35. Metals: Defects and Surfaces](#)

[T36. Focus Session: Graphene Growth, Characterization, and Devices: Structure, Interfaces and Transfer](#)

[T37. Focus Session: Graphene Structure, Dopants, and Defects: Nanoribbons](#)

[T38. Focus Session: Quantum Coherence in Biology IV](#)

[T39. Computational Molecular Biophysics](#)

[T40. Physics of Proteins V: Protein-Protein Interaction, and Protein Aggregation](#)

[T41. Focus Session: The Role of Water in Energy Production and Utilization I](#)

[T42. Focus Session: The Physics of Evolution I](#)

[T43. Physics of Bacteria](#)

[T44. Evolutionary and Ecological Systems](#)

[T45. Focus Session: Magnetic and Spin Ordering in Atomic and Optical Systems](#)

[Session U](#)

[U1. Nobel Prize Session: Graphene: Materials in the Flatland](#)

[U50. DCOMP Business Meeting](#)

[U55. "Trends" in the APS Publication Physics](#)

[Session V](#)

[V1. Iron Pnictides versus Iron Chalcogenides: Magnetism and Pairing Fluctuation](#)

[V2. Fermi Surface Reconstruction and Competing Orders in High T<sub>c</sub> Cuprates](#)

[V3. Controlling Quantum Interactions of Single Spins and Photons in Diamond](#)

[V4. Dynamics of Polymers: Phenomena Due to Confinement](#)

[V5. Physics for Everyone](#)

[V6. Hybrid Functionals Applied to Solids](#)

[V7. High Resolution Tunneling Spectroscopy of Dirac Fermions](#)

[V8. Enhancing Graduate Education in Physics: Focus on Skills](#)

[V9. Self Assembly I](#)

[V10. Focus Session: Growth, Structure, Dynamics, and Function of Nanostructured Surfaces and Interfaces -- Semiconductors](#)

[V11. Electronic Structure: Theory and Spectra II](#)

[V12. Transport in 2-D Systems](#)

[V13. Glassy Systems and Jamming II](#)

[V14. Focus Session: Statistical Mechanics of Complex Networks I](#)

[V15. Focus Session: Spins in Semiconductors - Spin Currents III](#)

[V16. Focus Session: Magnetic Nanostructures, Exchange Coupled System](#)

[V17. Focus Session: Bulk Properties of Complex Oxides - 5d Oxides](#)

[V18. Focus Session: Low D/Frustrated Magnetism - Spin Ice, et al.](#)

[V19. Focus Session: Spin Transport & Magnetization Dynamics in Metals VIII](#)

[V20. Focus Session: Physics of Energy Storage Materials V -- Thermal Storage and Conventional Hydrides](#)

[V21. Focus Session: Teaching Computational Physics to Classroom and Research Students](#)

[V22. Magnetic Phase Transitions I](#)

[V23. Superconductivity: Josephson Effects II](#)

[V24. History of Physics and International Programs](#)

[V25. Superconductivity: HTSC Theory, Mostly Nematics and Inhomogeneous Systems](#)  
[V26. Focus Session: Iron Based Superconductors -- Doping Studies](#)  
[V27. Focus Session: Semiconductor Qubits- Dynamic Decoupling, Dephasing, and Relaxation](#)  
[V28. Focus Session: Carbon Nanotubes and Related Materials: Devices III](#)  
[V29. Quantum Control and Measurement](#)  
[V30. Nanowires and Nanotubes: Thermal and Mechanical Properties](#)  
[V31. Energy Production: Combustion, Heat Engines, Solar Thermal and Thermoelectrics](#)  
[V32. Photonics: Metamaterials, Nanotechnology and Sensors](#)  
[V33. Focus Session: Dielectric, Ferroelectric, and Piezoelectric Oxides: Vortices and Novel](#)

#### [Mechanisms](#)

[V35. Topological Insulators: ARPES & STM](#)  
[V36. Graphene: Optical Properties I](#)  
[V37. Focus Session: Graphene Growth, Characterization, and Devices: Transport](#)  
[V38. Focus Session: The Physics of Evolution II](#)  
[V39. Cellular Biomechanics](#)  
[V40. Thesis Award Session: Nucleic Acids -- Structure, Function, and the Genome](#)  
[V41. Focus Session: The Role of Water in Energy Production and Utilization II](#)  
[V42. Focus Session: Supramolecular Self-Assembly--Controlling Network and Gel Formation](#)

#### [II](#)

[V43. Focus Session: Translocation Through Nanopores II](#)  
[V44. Focus Session: Organic Electronics and Photonics -- Small molecule semiconductors and molecular electronics](#)  
[V45. Rotation and Artificial Gauge Fields: Vortices and Quantum Hall Physics](#)

#### [Session W](#)

[W1. Superconducting Qubits: Advances in Single-Shot QND Readout](#)  
[W2. CVD Graphene: Synthesis, Properties and Applications](#)  
[W3. Advances in ZnO Physics and Applications](#)  
[W4. Glassy Dynamics and Jamming](#)  
[W5. Educating Physicists for Industrial Careers](#)  
[W6. Alkaline Earth Atoms and SU\(N\) Magnetism](#)  
[W8. Bose-Einstein Condensation of Magnons and Related Phenomena](#)  
[W9. Self Assembly II followed by Vesicles and Micelles II](#)  
[W10. Adsorption, Wetting, and Complex Interfaces](#)  
[W11. Electronic Structure: Thermodynamics and Optical Properties](#)  
[W12. Electronic Transport in Novel Materials and Nanostructures](#)  
[W13. Applications of Statistical and Nonlinear Physics in the Life Sciences](#)  
[W14. Focus Session: Extreme Mechanics: Elasticity and Deformation III](#)  
[W15. Focus Session: Spins in Semiconductors - Spin-Orbit Effects and Confinement](#)  
[W16. Focus Session: Bulk Properties of Complex Oxides - Other](#)  
[W17. Focus Session: Magnetic Oxide Thin Films - Cobaltate and Ferrous Oxide Thin Films](#)  
[W18. Many Body](#)  
[W19. Focus Session: Novel Magnetic Devices](#)  
[W20. Focus Session: Thermoelectric Materials: Clathrates and Oxides](#)  
[W21. Novel Imaging Techniques and Calorimetry](#)  
[W22. Magnetic Phase Transitions II](#)  
[W23. Superconductivity: Mesoscopic and Nanometer Scale Phenomena](#)  
[W24. Density Functional Theory I](#)  
[W25. Novel Superconductors I](#)  
[W26. Focus Session: Iron Based Superconductors -- Tuning Magnetism and Superconductivity](#)  
[W27. Focus Session: Semiconductor Qubits- Optical Control, Donors, and Hybrid Systems](#)  
[W28. Graphene: Nanoribbons and Electronic Transport](#)  
[W29. Symmetric Discrete Structures for Finite Dimensional Quantum Systems](#)

[W30. Nanowires and Nanotubes: Optical Properties and Spectroscopy](#)  
[W31. Energy Production & Distribution, Nuclear, Hydrogen, Bio and Infrastructure](#)  
[W32. Focus Session: Frontiers in Computational Thermodynamics of Materials I](#)  
[W33. Insulators and Dielectrics I](#)  
[W34. Focus Session: Optical Properties of Nanocrystals](#)  
[W35. Topological Insulators: Superconductivity](#)  
[W36. Focus Session: Graphene Structure, Dopants, and Defects: Graphene Oxide and Fluoride](#)  
[W37. Focus Session: Graphene: Growth, Characterization, and Devices: Quantum Hall Effect](#)  
[W38. Focus Session: Organic Electronics and Photonics -- Charge transport](#)  
[W39. Experimental Techniques in Biophysics](#)  
[W40. Polymer Blends](#)  
[W41. Focus Session: Electronic Structure and Applications to Energy Conversion I](#)  
[W42. Focus Session: Polymer Brushes](#)  
[W43. Morphology and Transport in Charged Polymers, Block Copolymers, Membranes, and Films](#)

[W44. Focus Session: Dynamics of Polymers-Phenomena due to Confinement - Diffusion, Particles, & Pores](#)

[W45. Atom-Light Interactions: Experiment and Theory](#)

#### [Session X](#)

[X1. Quantum and Classical Phenomena in Josephson Junction Arrays](#)

[X2. Coexistence Between Antiferromagnetism and Superconductivity in Fe-pnictides](#)

[X3. Topological Vortices in Magnets, Ferroelectrics, and Multiferroics](#)

[X4. Functional Gels](#)

[X5. The Corporate Feel: Atomic Force Microscopy in Industry](#)

[X6. Pairing in Imbalanced Fermi Mixtures](#)

[X7. Quantitative Approaches to DNA Replication](#)

[X8. Migrations of Physicists](#)

[X9. Coordination, Coherence and Synchronization through Hydrodynamic Interactions](#)

[X10. Focus Session: Growth, Structure, Dynamics, and Function of Nanostructured Surfaces and Interfaces -- Organic Molecules](#)

[X11. Integer Quantum Hall Effect](#)

[X13. Focus Session: Continuum Description of Particulate Media](#)

[X14. Focus Session: Extreme Mechanics: Elasticity and Deformation IV](#)

[X15. Focus Session: Spins in Semiconductors - Manipulation of Dopant Spins](#)

[X16. Focus Session: Spins in Carbon-Based Materials -- Graphene, CNT, and C60](#)

[X17. Focus Session: Magnetic Oxide Thin Films - Multiferroic Heterostructures and Europium Oxide](#)

[X18. Focus Session: Low D/Frustrated Magnetism - Spin Chains & Ladders](#)

[X19. Classical and Quantum Molecular Dynamics](#)

[X20. Focus Session: Thermoelectric Materials: Theory](#)

[X21. Focus Session: Novel X-Ray Instrumentation and Measurement Techniques](#)

[X22. Metals: Bulk Properties and Nanostructures](#)

[X23. Focus Session: Iron Based Superconductors -- Gap Symmetry](#)

[X24. Focus Session: Quantum Transport Simulations and Computational Electronics -- Molecular Junctions](#)

[X25. Superconductivity: Optical, Raman and Other Spectroscopies](#)

[X26. Focus Session: Iron Based Superconductors -- Fe\(Se-Te\)](#)

[X27. Quantum Computing and Simulation II](#)

[X28. Carbon Nanotubes and Related Materials: Theoretical and Computational Studies](#)

[X29. Focus Session: Quantum Information for Quantum Foundations - Information Measures, Entanglement, and Entropies](#)

[X30. Nanowires: Electronic Transport, Experimental](#)

[X31. Amorphous Solids, Glasses & Liquids I](#)  
[X32. Focus Session: Frontiers in Computational Thermodynamics of Materials II](#)  
[X33. Quantum Fluids and Solids I](#)  
[X34. Nanostructures: Assembly, Growth, and Characterization](#)  
[X35. Topological Insulators: Theory III](#)  
[X36. Graphene: Quantum Hall Effect](#)  
[X37. Focus Session: Graphene Structure, Dopants, and Defects: Magnetism and Nanoribbons](#)  
[X38. Focus Session: Non-Equilibrium Insights into Single Molecules and Cell Function I](#)  
[X39. Biomechanics: From Subcellular to Multicellular Scales](#)  
[X40. Biological Networks and Systems Biology](#)  
[X41. Focus Session: Electronic Structure and Applications to Energy Conversion II](#)  
[X42. Polymeric Glasses](#)  
[X43. Focus Session: Assembly, Structure, & Instabilities in Polymer Films, Network Films, & Interfaces II](#)  
[X44. Focus Session: Polymer Colloids-Structure, Function, and Dynamics II](#)  
[X45. Focus Session: Nanocomposite Physics I-Dispersions and Physical Properties](#)

[Session Y](#)  
[Y1. New Insights Into the Mott Transition](#)  
[Y2. Topological Insulators: Transport and Interactions](#)  
[Y3. Recent Developments in Solid 4He](#)  
[Y4. Polymer Colloids: Structure, Function and Dynamics](#)  
[Y5. Opening the Gap: Chemical Functionalization and Substitution in Graphene](#)  
[Y6. Ultrafast Magnetization Dynamics: Where Are We Today?](#)  
[Y8. Experiences and Issues for Young Physicists in the International Arena: Impact on the Future of Physics followed by Panel Discussion](#)  
[Y9. Motility, Locomotion and Cellular Fluid Mechanics](#)  
[Y10. Electronic Structure of Surfaces and Interfaces](#)  
[Y13. Granular Materials I](#)  
[Y14. Focus Session: Statistical Mechanics of Complex Networks II](#)  
[Y15. Focus Session: Spins in Semiconductors - Spin Currents IV](#)  
[Y16. Focus Session: Spins in Carbon-Based Materials -- Magnetoresistance, Magneto-Electric Effect](#)  
[Y18. Focus Session: Low D/Frustrated Magnetism - More Frustrated Magnets](#)  
[Y20. Focus Session: Thermoelectric Materials: Chalcogenides and 1D/2D Systems](#)  
[Y21. High Magnetic Field Measurements, Novel sensors, and Neutron Diffraction](#)  
[Y22. Ferroelectric and Structural Phase Transitions](#)  
[Y23. Superconductivity: Proximity Effects](#)  
[Y24. Density Functional Theory II](#)  
[Y25. Superconductivity: Mainly HTSC Theory](#)  
[Y26. Focus Session: Iron Based Superconductors -- Orbital Order](#)  
[Y27. Focus Session: Semiconductor Qubits- In Search of Majorana](#)  
[Y29. Focus Session: Superconducting Qubits - Coherence and Materials II](#)  
[Y30. Nanowires and Nanotubes: Fundamentals and Applications](#)  
[Y31. Amorphous Solids, Glasses & Liquids II](#)  
[Y33. Cold Fusion](#)  
[Y35. Topological Insulators: Applications](#)  
[Y36. Graphene: Optical Properties II](#)  
[Y38. Focus Session: Non-Equilibrium Insights into Single Molecules and Cell Function II](#)  
[Y39. Focus Session: Imaging and Interfaces in Energy Science](#)  
[Y40. Focus Session: Nanocomposite Physics II-Polymer Dynamics](#)  
[Y41. Elastomers and Gels](#)  
[Y42. Focus Session: Dynamics of Polymers--Phenomena due to Confinement--Theory,](#)

Wrinkling, and Glass Transitions

Y43. Molecules, Solutions, Networks, & Gels

Y44. Focus Session: Organic Electronics and Photonics -- Exciton and charge separation physics

Y45. Atom Interactions with Molecules, Surfaces, and X-Rays

Session Z

Z1. Solid-State Spin Qubits: Coherence Control and Protection

Z2. Pseudogap in High Tc Cuprates

Z9. Complex Fluids, Polymers, Gels

Z10. Novel Instrumentation and Techniques in Surface Science

Z13. Granular Materials II

Z14. Focus Session: Statistical Mechanics of Complex Networks III

Z22. Properties of Semiconducting Nanosystems

Z23. Superconductivity: Thermodynamics, etc.

Z25. Novel Superconductors II

Z26. Focus Session: Iron Based Superconductors -- Electronic Anisotropy

Z27. Focus Session: Semiconductor Qubits - Theory and Experiment

Z29. Focus Session: Superconducting Qubits - Coherence and Materials III

Z33. Quantum Fluids and Solids II

Z35. Insulators and Dielectrics II

Z39. Surfaces, Interfaces and Colloids

Z40. Semi Crystalline Polymers: Morphology and Electronics

Z42. Biopolymers: Molecules, Solutions, Networks, and Gels

Z43. Liquid Crystalline Order in Polymer and Complex Fluids

Z44. Focus Session: Organic Electronics and Photonics -- New Materials and Applications

Z45. Bose-Einstein Condensates, Matter Optics, and Atomic Interferometry