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A Message from the Chair

The 2017 March meeting is almost upon us. I would like to share some highlights of DMP-organized elements of this year's outstanding program and to emphasize important upcoming deadlines for the 2018 March meeting and other DMP activities.

DMP principally contributes to the March meeting through the organization of Focus Topic sessions. Roughly 20% of the submitted abstracts to the 2017 March meeting were submitted to DMP-led Focus Topics, and this newsletter provides links and details describing the numerous DMP sessions and events in New Orleans. DMP leads 19 Focus Topics and co-sponsors 15 others, which led to 241 total sessions. DMP also sponsors three invited sessions during the week, including the Monday afternoon prize session (joint with GMAG this year) in which speak the recipients of the McGroddy Prize for new Materials, Paul Canfield, and the Adler Lectureship awardee, Heike Riel. Amanda Petford-Long has organized our annual "Physics for Everyone" symposium, Wednesday midday, around the theme of "Physics meets the Arts". Speaking will be Mark Walton on the origin of art's appearance, Pupa Gilbert on the properties of color, Charles Falco on the role of optical science in the history of art, Paul Halpern on thinking in pictures (diagrams and problem solving), and Volker Rose on Pablo Picasso's paints. The third invited session, Thursday midday, recognizes recent progress in physics inspired by the contributions of Walter Kohn, inventor of the density functional theory and Nobel Laureate, who died in April 2016. The speakers will be Qian Niu on semiclassical theories of transport, Ben Murrin on advances in shallow impurity physics, Kieron Burke on the properties and nature of density functionals, as well as Giulia Galli and Matthias Scheffler on the achievements of density functional theory in chemistry, materials, and condensed matter physics.

DMP recognizes our award winners and the new APS fellows nominated through DMP on Tuesday evening, March 14, from 5:30-7:00 at the New Orleans Marriott, Mardi Gras Ballroom

Salon ABCD (3rd Floor). We also recognize the achievements of junior scientists through the Ovshinsky Travel Awards, the IUPAP C-10 Young Scientist Prize, and the Richard L. Greene Dissertation Award in Materials and Condensed Matter Physics. The annual DMP business meeting follows immediately after in the Marriott Bacchus room. Topics to be discussed in that meeting include the Focus Topics for the 2018 March meeting, as well as the changes in the by-laws that are under consideration by DMP.

Now is the time to propose new Focus Topics for next year's March meeting, by contacting Amanda Petford-Long, who will be the DMP Program Chair for the 2018 March Meeting in Los Angeles. A DMP focus topic provides a structure to gather contributed and invited talks together in a series of coordinated sessions that foster increased discussion on a specific area. Please send suggestions to Amanda Petford-Long (petford.long@anl.gov) following the instructions provided later in this Newsletter. Please consider suggesting invited speakers to these Focus Topics when the selections and organizers are announced; these Focus Topics are central to DMP's role in the March meeting.

DMP recognizes major accomplishments in materials physics through the David Adler Lectureship Award and the James C. McGroddy Prize for New Materials. Please consider advancing a deserving colleague for one of these prestigious awards. Application packages are due July 1, 2017. See the APS Prizes, Awards and Fellows pages for details of the nomination processes.

New APS Fellowship nominations to DMP are due **May 1, 2017**. Nitin Samarth, just elected to begin as Vice-Chair of DMP following the March Meeting, will chair the selection process.

None of these activities happen without the contribution of an army of volunteers, including Focus Topic organizers and the DMP Executive Committee. I would like to thank Dan Dessau, the DMP Program Chair for the 2017 March Meeting, for his efforts; you can see the results in the outstanding program of talks and sessions assembled for this year's meeting. Secretary-Treasurer Robert Nemanich is concluding his term at the end of the March Meeting, and has been a tireless advocate for DMP and has kept the rest of us on track and meeting our deadlines (all with a smile). In my role I would have been lost without the advice and example of John Mitchell, the DMP Past Chair, who will be rotating off the DMP Executive Committee and beginning a new leadership commitment with GMAG. My thanks to John, also to Jim Chelikowsky, DMP Councilor, who represented the perspective of materials physics at the APS Council, especially in relation to the new journal, Physical Review Materials, and to our Members at Large completing their terms, Emilia Morosan and Jeff Neaton, who provided invaluable contributions to the Focus Topic organization. I would also like to welcome the new members of the DMP Executive Committee, Vice-Chair-elect Nitin Samarth, Councilor Sam Bader, Secretary-Treasurer Charles Ahn, and Members at Large Ezekiel Johnston-Halperin and Ni Ni.

It has been an honor to serve as DMP Chair this past year, and I thank all of you for the opportunity.

Finally, I would like to acknowledge the passing of a giant of material physics, Millie Dresselhaus, on February 20. Her exceptional research contributions, especially to the physics of carbon, her mentorship of junior scientists, and her commitment to service (including as President of the American Physical Society) have been and will continue to be an inspiration. Please see the APS obituary for her at <https://www.aps.org/publications/apsnews/updates/mildred.cfm> .

Michael Flatté, DMP Chair

Call for DMP Focus Session Topics for 2018 APS March Meeting (March 5-9, 2018 in Los Angeles)

The Division of Materials Physics sponsors a wide range of Focus Topics as its primary structure for the March Meeting. Typically spanning several sessions throughout the March Meeting, Focus Topics allow an in-depth view of forefront materials physics research areas and connect invited speakers to associated contributed abstracts.

Each year, the existing set of Focus Topics is evaluated for inclusion in the next year's program. In addition, new candidates for Focus Topics are considered based on timeliness, an assessment of the community interest, and uniqueness with the existing DMP program and those of sister units. Ideas coming from the DMP community at large are an extremely important part of this process.

To that end, the DMP Executive Committee solicits your input for the 2018 Focus Topic slate. New Focus Topics should represent a significant topic that would support 3 or more March Meeting sessions (each session typically has 1 invited talk and 12 related contributed talks).

Please send proposed Focus Topics to DMP Secretary/Treasurer Robert Nemanich (robert.nemanich@asu.edu) by **Monday, February 27, 2017 (late submissions will be considered if possible)**. Please include

- Descriptive Title of the Focus Topic
- The nominator's name, affiliation, phone number and e-mail address
- A brief abstract noting timeliness and uniqueness of the topic relative to the existing program (for examples: <http://www.aps.org/units/dmp/meetings/invited-speaker.cfm>).
- A description of the intended audience that supports the size and scope of a Focus Topic.
- Suggestions for possible organizers.

Any additional information you would like to provide that will help the DMP Executive Committee in its decision-making process will be appreciated. For your reference, a complete list of the 2016 Focus Topics is included in this mailing. Full descriptions of the 2016 Focus Topics can be found online at <http://www.aps.org/units/dmp/meetings/invited-speaker.cfm>.

If you have any questions or would like assistance in the preparation of your proposal, please contact DMP Vice Chair Amanda Petford-Long (Petford-Long@anl.gov).

Thank you in advance for your help in this extremely important part of planning for the future success of the DMP program.

Sincerely,

Amanda Petford-Long, DMP Vice Chair and 2018 Program Chair
Dan Dessau, DMP Chair-Elect and 2017 Program Chair

DMP led Focus Topics for 2017 (Details: <https://www.aps.org/units/dmp/meetings/invited.cfm>)

- 7.1.1: Dielectric and Ferroic Oxides [Same as 11.1.1]
- 7.1.2: Topological Materials: Synthesis, Characterization, and Modeling
- 7.1.3: Dirac and Weyl semimetals (same as 12.1.10)
- 7.1.4: Organometal Halide Perovskites: Photovoltaics and Beyond [Same as 12.1.11]
- 8.1.2: Dopants and Defects in Semiconductors
- 9.1.1: Fe-based Superconductors {same as 16.1.15}
- 9.1.2: Topological Superconductivity

- 12.1.1: 2D Materials: Synthesis, Defects, Structure and Properties
- 12.1.2: 2D Materials: Semiconductors [Same as 8.1.7]
- 12.1.3: Devices from 2D Materials: Function, Fabrication and Characterization
- 12.1.4: 2D Materials: Metals, Superconductors, and Correlated Materials
- 12.1.5: Carbon Nanotubes and Related Materials: Synthesis, Properties, and Applications
- 12.1.6: Van der Waals Bonding in Advanced Materials [same as 16.1.6]
- 12.1.7: Computational Discovery and Design of Novel Materials
- 13.1.1: Nanostructures and Metamaterials
- 13.1.2: Electron, Exciton, and Heat Transport in Nanostructures
- 13.1.3: Complex Oxide Interfaces and Heterostructures
- 13.1.4: Thermoelectric phenomena, materials, devices
- 14.1.1: Surface Science of Organic Molecular Solids, Films, and Nanostructures

Proposed Changes to DMP Bylaws

The current bylaws that govern DMP Executive Committee roles and responsibilities do not permit the use of special elections or special ballots for any changes to these bylaws. This is not in keeping with the practices of our sister units and makes for a cumbersome process that requires a minimum of 15 months and up to 24 months to complete. While I was chair of DMP, I suggested to the executive committee that we change our bylaws to make special ballots for this purpose possible in the future; the motion was approved. The text of the existing bylaws can be found on the website and the proposed changes can be accessed here ([DMP Bylaws update](#)). You will note that the proposed changes extend beyond the issue of special elections. These changes are required so that we comply with new APS governance policies. The DMP Executive Committee recommends approval of these changes by the membership.

As a first step, we have received approval from the APS Council for making these changes to the DMP Bylaws. The next steps are:

- Public comment at the 2017 DMP Business Meeting, to be held Tuesday, March 14 from 7:00 p.m. at the March Meeting 2017 in New Orleans.
- A vote by the membership on the proposed change to the bylaws at our regular election of officers in the fall of 2017.

The executive committee invites any member in good standing of DMP to join us at the Business Meeting to make any comments on the proposed changes to the bylaws. Comments by email to DMP Past Chair, John Mitchell (mitchell@anl.gov) are welcome and will be read at the meeting.

We look forward to receiving your comments or to hearing from you in person at the Business Meeting.

New Members of the Executive Committee

The following members were elected to serve on the DMP Executive Committee:

- Vice Chair: Nitin Samarth, Pennsylvania State University
- Secretary Treasurer: Charles Ahn, Yale University
- DMP Division Councilor: Samuel D. Bader, Argonne National Laboratory
- Member at Large: Ezekiel Johnston-Halperin, The Ohio State University
- Member at Large: Ni Ni, University of California, Los Angeles

We congratulate the new members of the Executive Committee and look forward to their participation and leadership.

DMP Executive Committee for 2017-2018

The Executive Committee Officers and Members-at-Large for the 2017-2018 year, (who begin their terms begin following the March Meeting):

Officers:

- Chair: Daniel S. Dessau, (04/17 - 03/18)
University of Colorado, Boulder
- Chair Elect: Amanda K Petford-Long, (04/17 - 03/18)
Argonne National Laboratory
- *Vice Chair: Nitin Samarth, (04/17 - 03/18)
Pennsylvania State University
- Past Chair: Michael E. Flatté, (04/17 - 03/18)
University of Iowa
- Councilor: Samuel D. Bader, (01/17 - 12/20)
Argonne National Laboratory
- *Secretary/Treasurer: Charles Ahn, (04/17 - 03/20)
Yale University

Members-at-Large:

- Peter M. Gehring, (04/15 - 03/18)
NIST Center for Neutron Research
 - John Singleton, (04/15 - 03/18)
National High Magnetic Field Laboratory, Los Alamos National Laboratory
 - Scott Chambers, (04/16 - 03/19)
Pacific Northwest National Laboratory
 - Michelle Johannes, (04/16 - 03/19)
Naval Research Laboratory
 - *Ezekiel Johnston-Halperin, (04/17 - 03/20)
The Ohio State University
 - *Ni Ni, (04/17 - 03/20)
University of California, Los Angeles
- *Newly elected

APS's Office of Public Affairs: Helium-Related Activities

The American Physical Society – in partnership with the Materials Research Society and American Chemical Society – hosts an easy-to-use website that connects researchers who rely on helium with companies that can help them transition to helium-conserving technologies: <https://conserve-helium.org/>

The website helps researchers determine if it is economically favorable to transition to equipment that reduces helium usage and provides the option to be connected directly to equipment vendors.

Many of the vendors have expressed willingness to develop financing terms, such as lease-to-own, that are compatible with federal funding.

NSF already provides its grantees considerable flexibility that would allow them to take advantage of lease-to-own arrangements and APS, ACS and MRS are now working with other agencies to establish a similar path for scientists, engineers, and innovators supported by the Defense labs, DOE, NIST, NIH, and NASA.

March Meeting: Location

The 2017 March Meeting of the APS will take place, March 12-17, in the Ernest N. Morial Convention Center-New Orleans, 900 Convention Center Blvd, New Orleans, Louisiana. All scientific sessions will be in the Convention Center but events and activities may be in the Convention Center or the Baltimore Hilton Inner Harbor hotel. Check event details for time and place.

For further information see:

<http://www.aps.org/meetings/march/index.cfm>

For the DMP sponsored sessions see:

<http://meetings.aps.org/Meeting/MAR17/SessionIndex2?SponsorID=DMP>

March Sponsored Meetings: DMP/DCMP Fellows and Awards Reception and Business Meeting

The Division of Materials Physics will sponsor the following meetings during the 2017 March meeting. This is your opportunity to interact with the Executive Committee and to become informed of the activities of the Division.

Tuesday, March 14

DCMP/DMP New Fellows & Award Winners Reception

5:30 p.m. - 7:00 p.m.

New Orleans Marriott, Mardi Gras Ballroom Salon ABCD (3rd Floor)

DMP Business Meeting, (JA50)

7:00-8:00pm

New Orleans Marriott, Bacchus Room (4th Floor)

Division of Materials Physics Ovshinsky Student Travel Awards

The Ovshinsky Student Travel Awards and Honorable Mention Awards have been established to assist the career of student researchers. The Awards are in memory of Iris and Stanford Ovshinsky who had a very strong interest and commitment to scientific education. The awards have been endowed by the Ovshinsky family, their colleagues at Energy Conversion Devices (ECD) companies and all their numerous friends from many social, intellectual and business relationships.

We are extremely grateful to the Ovshinsky family for this award. Since the original launch of the award, the family have provided further gifts to endow the awards.

The Ovshinsky Student Travel Awards will be presented at the DCMP/DMP New Fellows and Award Winners Reception, Tuesday, March 14, 5:30 p.m. at the New Orleans Marriott, Mardi Gras Ballroom Salon ABCD (3rd Floor).

The recipients of the 2017 Ovshinsky Student Travel Awards for Materials Physics are:

NAME	INSTITUTION
Nenian Charles	Drexel University
Matthew Gray	Stanford University
Hilary Jacks	University of California, Berkeley
Marzieh Kavand	University of Utah
Karthik Krishnaswamy	University of California, Santa Barbara
Haixing Li	Columbia University
Xiaolong Liu	Northwestern University
Patrick Marshall	University of California, Santa Barbara
Koushik Pal	J. Nehru Ctre. for Adv. Sci. Res. (JNCASR)
Yu Pan	Pennsylvania State University
Abhinav Prakash	University of Minnesota, Twin Cities
Doaa Taha	Wayne State University

The recipients of the 2017 Ovshinsky Student Travel Honorable Mention Awards for Materials Physics are:

NAME	INSTITUTION
Kaveh Ahadi	University of California, Santa Barbara
Lin Du	University of Massachusetts Amherst
Jamie Elias	Washington University in St. Louis
Teresa Esposito	Rensselaer Polytechnic Inst.
Michael Ford	University of California, Santa Barbara
Wei Jiang	University of Utah
Ramya Vishnubhotla	University of Pennsylvania

Division of Materials Physics Post-Doctoral Travel Awards

The DMP Post-Doctoral Travel Awards have been established this year to recognize innovative materials physics research by Post-Doctoral researchers that will be presented at the APS March Meeting. The Awards are supported through the Division of Materials Physics.

The recipients will receive \$800 Travel Awards to support participation in DMP Focus Topic sessions at the APS 2017 March Meeting sessions. The selection of the recipients of the DMP Post-Doctoral Travel Awards is based on the research quality, the impact of the research at the March Meeting and the innovative contribution of the post-doctoral researcher.

The DMP Post-Doctoral Travel Awards will be presented at the DCMP/DMP New Fellows and Award Winners Reception, Tuesday, March 14, 5:30 p.m. (Place to be announced).

The recipients of the 2017 DMP Post-Doctoral Travel Awards are:

NAME	INSTITUTION
Stephen Boona	The Ohio State University
Peng Chen	University of Illinois at Urbana-Champaign
Nicholas Harmon	University of Iowa
Matthias Benjamin Jungfleisch	Argonne National Laboratory
Wei Sun Leong	MIT
Hailong Wang	The Pennsylvania State University
Leigh Weston	University of California, Santa Barbara
Darshana Wickramaratne	University of California, Santa Barbara
Ziliang Ye	Stanford University
Junjie Zhang	Argonne National Laboratory
Jian Zhou	Virginia Commonwealth University

Award and Prize Winners

James C. McGroddy Prize for New Materials

[Paul C. Canfield](#), Iowa State University

“For development and use of solution growth of single crystalline intermetallic materials to design, discover, and elucidate new heavy fermion, superconducting, magnetic, and quasicrystalline states.”

David Adler Lectureship Award

[Heike E. Riel](#), IBM Research – Zurich

“For seminal achievements in the science and technology of nanoscale electronics, particularly the exploration of novel materials such as semiconducting nanowires, molecules and organic materials for future nanoscale devices, and outstanding presentations and outreach for general audiences.”

IUPAP Young Scientist Prize in the Structure and Dynamics of Condensed Matter (C10)

Dr. Cui-Zu Chang, Francis Bitter Magnet lab, Massachusetts Institute of Technology,

“For the discovery of quantum anomalous Hall effect in magnetically doped 3D topological insulator films.”

Richard L. Greene Dissertation Award in Experimental Condensed Matter or Materials Physics

[Deep Jariwala](#), Northwestern University

“For insightful work in the processing, properties and applications of heterostructure devices from low-dimensional materials.”

[Liang Wu](#), University of California, Berkeley

“For insightful experiments on the electrodynamic response of topological insulators and the discovery of the topological magneto-electric effect.”

2016 APS Fellows nominated through DMP:

Yong P. Chen, Purdue University

Citation: For significant contributions to the material physics of chemical vapor deposition; and to the development of intrinsic 3-D topological insulators with transport dominated by Dirac surface states.

Kyeongjae Cho, University of Texas at Dallas

Citation: For seminal contributions to the development and application of first principles methods in the study of nanoscale materials, and the application of rational material design approaches to develop metal alloy and transition metal oxide catalysts for clean energy technology.

Hongyou Fan, Sandia National Laboratories

Citation: For pioneering contributions to the development of novel synthesis methods and self-assembly processes to fabricate nanostructured materials for nanoelectronic and nanophotonic applications.

Anderson Janotti, University of Delaware

Citation: For outstanding and original contributions to the fundamental understanding of defect physics and doping in wide-band-gap semiconductors through first-principles methods.

Ezekiel Johnston-Halperin, The Ohio State University

Citation: For pioneering studies of the magnetic, spintronic, and electronic properties of organic and inorganic materials, including groundbreaking work with organic based ferromagnets.

Mercouri Kanatzidis, Northwestern University

Citation: For the discovery of new materials with exceptional properties, and for developing pioneering materials physics concepts in the design of nanostructured thermoelectric materials that convert waste heat to electricity with breakthrough performance characteristics.

Ho Nyung Lee, Oak Ridge National Laboratory

Citation: For pioneering contributions in achieving atomic-scale growth control in pulsed laser deposition, and for significant advances towards discovery of functional oxide materials by epitaxial design of thin films and heterostructures.

Jianwei "John" Miao, University of California, Los Angeles

Citation: For pioneering contributions to the development of diffractive imaging methods for characterizing a wide range of material systems and a general electron tomography method for three-dimensional imaging of crystal defects at atomic resolution.

Ganpati Ramanath, Rensselaer Polytechnic Institute

Citation: For creative approaches to realize novel properties in bulk nanomaterials fabricated from nanocrystal building blocks and molecularly-tailored interfaces; and uncovering atomistic and electronic structure-level mechanisms of property enhancements.

Athena S. Sefat, Oak Ridge National Laboratory

Citation: For major contributions in developing new and pure iron-based superconducting crystals, and advancing the understanding of structure-composition-property relations on multi-length scales in high temperature superconductors and antiferromagnets.

Jonathan E. Spanier, Drexel University

Citation: For outstanding contributions to advancing understanding of light-matter interactions, ferroelectric phase stability, and nanoscale phenomena in semiconductors, ferroelectrics and related oxides, interfaces and surfaces, including hot carrier behavior, Raman scattering, and photovoltaics.

Haiyan Wang, Purdue University

Citation: For innovations in nanostructured materials and their application in multifunctional ceramic composites and hybrid materials, high temperature superconductors, thin film solid oxide fuel cells, and in situ transmission electron microscopy; and for exceptional potential in inspired education and future leadership.

James A. Warren, National Institute of Standards and Technology – Gaithersburg

Citation: For seminal contributions to the modeling of microstructural development in a broad range of materials.

Qikun Xue, Tsinghua University

Citation: For transformational development of atomic-level controlled thin film growth, to elucidate fundamental new physics.

Judith C. Yang, University of Pittsburgh

Citation: For seminal contributions to in situ environmental transmission electron microscopy, the fundamental understanding of metal oxidation, and the application of nanomaterials and catalysis.

March Meeting: Public Outreach

Q3.00001: The Physics and Materials Science of Superheroes

JAMES KAKALIOS, University of Minnesota

Wednesday, March 15, 2017

6:30PM - 7:30PM

While physicists, engineers and materials scientists don't typically consult comic books when selecting research topics; innovations first introduced in superhero adventures as fiction can sometimes find their way off the comic book page and into reality. As amazing as the Fantastic Fours powers is the fact that their costumes are undamaged when the Human Torch flames on or Mr. Fantastic stretches his elastic body. In shape memory materials, an external force or torque induces a structural change that is reversed upon warming, a feature appreciated by Mr. Fantastic. Spider-Man's wall crawling ability has been ascribed to the same van der Waals attractive force that gecko lizards employ through the millions of microscopic hairs on their toes. Scientists have developed "gecko tape, consisting of arrays of fibers that provide a strong enough attraction to support a modest weight (if this product ever becomes commercially available, I for one will never

wait for the elevator again!). All this, and important topics such as: was it “the fall or “the webbing that killed Gwen Stacy, Spider-Mans girlfriend in the classic Amazing Spider-Man # 121, and the chemical composition of Captain Americas shield, will be discussed. Superhero comic books often get their science right more often than one would expect!

March Meeting: DMP Sponsored Symposia & Special Events

DMP Invited Symposia

C19 [DMP/GMAG Awards Session](#) Kate Ross, George Valley Jr. Prize; Paul Canfield, McGroddy New Materials Prize ; Deep Jariwala, Greene Dissertation Prize; Liang Wu, Greene Dissertation Prize; Heike Riel, David Adler Lectureship Award)

L22. [Physics For Everyone](#) (Marc Walton, Pupa Gilbert, Charles Falco, Paul Helpern, Volker Rose)

S24. [Progress in Physics Inspired by Walter Kohn](#) (Qian Niu, Ben Murdin, Kieron Burke, Matthias Scheffler, Giulia Galli)

Graduate Student Lunch with the Experts

Sponsoring Units: APS units at the meeting, Room: TBA, Tues., March 14, 12:30 - 2:00PM
Students may sign up (in registration area) on site to enjoy a complimentary box-lunch while participating in an informal discussion with an expert on a topic of interest to them.

DMP Supported Tables include:

- Michelle Johannes, Naval Research Labs “Extracting materials properties from first principles: what we get right and what goes wrong”
- Liang Fu, MIT "Topological quantum materials"
- John Mitchell, Argonne National Labs "Quantum Materials - What, Why and How?"
- Oana Jurchesku, Wake Forest University "A Balancing Act: A Family and a Career in Science"

DCMP/DMP New Fellows & Award Winners Reception

Tuesday, March 14, 5:30 p.m. - 7:00 p.m New Orleans Marriott, Mardi Gras Ballroom Salon ABCD (3rd Floor)

DMP: McGroddy Prize, Adler Award, Greene Dissertation Awards, DMP Nominated APS Fellows, Ovshinsky Student Travel Awards, DMP Post-Doctoral Travel Awards

DCMP: Buckley Prize, Onsager Prize, Lilienfeld Prize, Davisson-Germer Prize, Isakson Prize, DCMP Nominated APS Fellows

DMP Business Meeting

Tuesday, March 14, 7:00-8:00pm, New Orleans Marriott, Bacchus Room (4th Floor)

DMP Focus Topic Sessions:

[Session A](#)

A1. [Computational Discovery and Design of Novel Materials I](#)

A7. [Computational Physics at the Petascale and Beyond I](#)

A11. [Organic Electronics - Excited States and Energy Transfer](#)

A28. [Dopants and Defects in Semiconductors I: Quantum Information](#)

- A30. [Graphene: Structure, Defects, and Functionalization](#)
- A31. [Carbon Nanotubes and Related Materials: Transport and Devices](#)
- A32. [Devices from 2D Materials](#)
- A33. [Excitons in 2D Semiconductors](#)
- A34. [Hybrid Organic-Inorganic Halide Perovskites II](#)
- A36. [Quantum Dots, Quantum Wells, and Metamaterials: Optical Characterization and Applications](#)
- A37a. [Complex Oxide Interfaces and Heterostructures - LaAlO₃/SrTiO₃](#)
- A38. [Fe-based Superconductivity I](#)
- A43. [Spin Orbit Physics in Oxides I](#)
- A44. [Dirac and Weyl Semimetals: Transport I](#)
- A45. [2D Topological Superconductors](#)
- A47. [Magnetization Dynamics I: Ultrafast and Switching](#)
- A48. [Frustrated Magnetism: Kitaev Model](#)
- A50. [Low-D and Molecular Magnetism I](#)

Session B

- B1. [Computational Discovery and Design of Novel Materials II](#)
- B7. [Computational Physics at the Petascale and Beyond II](#)
- B11. [Organic Electronics - Fundamentals of Electronic Transport](#)
- B30. [Emerging 2D Materials: Phosphorene, Silicene, and Beyond](#)
- B31. [Carbon Nanotubes and Related Materials: Physical and Chemical Properties I](#)
- B32. [Field Effect Devices from 2D Materials](#)
- B33. [Valley and Spin Dependent Properties](#)
- B34. [Thermoelectrics - Sn-Se and Modeling](#)
- B35. [Experimental Techniques and Results: Static High Pressure Physics](#)
- B36. [Electronic and Transport Phenomena of Nanostructures I](#)
- B37a. [Complex Oxide Interfaces and Heterostructures - Ruthenates, LaAlO₃/SrTiO₃](#)
- B38. [Fe-based Superconductors: Nematicity I](#)
- B42. [Organic Spintronics](#)
- B43. [Magnetic Spinel and Binary Oxide Films](#)
- B44. [Session Dirac and Weyl Semimetals: ARPES, STM and Theory](#)
- B45. [Topological Materials: Thin Film](#)
- B47. [Antiferromagnetic Heterostructures and Magnon Drag](#)
- B48. [Frustrated Magnetism: Spinels, Pyrochlores, and Frustrated 3D Magnets I](#)
- B50. [Magnetism in Curved Nanostructures and Nanowires](#)

Session C

- C1. [Computational Discovery and Design of Novel Materials III](#)
- C2. [Materials in Extremes I](#)
- C7. [Computational Physics at the Petascale and Beyond III](#)
- C28. [Dopants and Defects in Semiconductors II: Oxides](#)
- C30. [Emerging 2D Materials Beyond Graphene](#)
- C31. [Carbon Nanotubes and Related Materials: Physical and Chemical Properties II](#)
- C32. [2D Atomic Layer Hetero-devices](#)
- C33. [Excitons in Heterostructures](#)
- C34. [Thermal and Thermoelectric Transport - Theory and Modeling](#)
- C36. [Electronic and Transport Phenomena of Nanostructures II](#)
- C37a. [Dielectric and Ferroelectric Oxides I](#)
- C39. [Fe-based Superconductors: Tunneling and Spectroscopy](#)
- C43. [Multiferroic Oxides I](#)
- C44. [Dirac and Weyl Semimetals: Theory I](#)
- C47. [Damping and Spin Polarization in Heusler Alloys](#)

C48. [Spin and Valley Dynamics in TMDs](#)

C50. [Low-D and Molecular Magnetism II](#)

[Session E](#)

E1. [Computational Discovery and Design of Novel Materials IV](#)

E2. [Materials in Extremes II](#)

E7. [First-Principles Modeling of Excited-State Phenomena I: Methodological Advances](#)

E11. [Organic Electronics - Applied Transport](#)

E28. [Dopants and Defects in Semiconductors III: Complex Oxides](#)

E30. [2D Materials: Processing and Application](#)

E31. [Graphene: Dopants, Adatoms, and Adsorbates](#)

E32. [2D Complex Oxide Devices and Devices at Oxide Interfaces](#)

E34. [Hybrid Organic-Inorganic Halide Perovskites III](#)

E35. [Experiments and Results at High Pressure, Static and Dynamic](#)

E37a. [Dielectric and Ferroelectric Oxides II](#)

E39. [Fe-based Superconductivity - 122 Structure Materials](#)

E42. [Magnetic Materials for Semiconductor Spintronics](#)

E43. [Spin Orbit Physics in Oxides II](#)

E44. [Dirac and Weyl Semimetals: Optics I](#)

E45. [Topological Materials: Synthesis and Characterization -- Magnetic Thin Film](#)

E47. [Frontiers in Magnetic Imaging](#)

E48. [Frustrated Magnetism: Pyrochlores](#)

E50. [Magnetic Nanoparticles and Nanostructures](#)

[Session F](#)

F1. [Computational Discovery and Design of Novel Materials V](#)

F2. [Materials in Extremes III](#)

F7. [First-Principles Modeling of Excited-State Phenomena II: Computational Advances](#)

F28. [Dopants and Defects in Semiconductors IV: Nitrides](#)

F30. [2D Materials: Properties and Characterization](#)

F31. [Quantum Transport](#)

F32. [Optoelectronic Devices from 2D Materials](#)

F34. [Thermal Transport](#)

F35. [Surface Science of Organic Molecular Solids, Films, and Nanostructures I](#)

F37a. [Complex Oxide Interfaces and Heterostructures - Stannates, Superconductivity](#)

F42. [Spin Transport in Quantum Dots and Nanowires](#)

F43. [Multiferroic Oxide Heterostructures](#)

F44. [Dirac and Weyl Semimetals: STM](#)

F45. [Realization of Kitaev Chain](#)

F47. [Spin-Orbit Torque I](#)

F48. [Frustrated Magnetism: Triangular Lattices](#)

F50. [Spin-Orbit Mediated Chiral Spin Textures I](#)

[Session H](#)

H1. [Computational Discovery and Design of Novel Materials VI](#)

H2. [Materials in Extremes IV](#)

H7. [First-Principles Modeling of Excited-State Phenomena III: TDDFT](#)

H11. [Organic Electronics - Organic Photovoltaics](#)

H30. [Magnetism in 2D Materials I](#)

H31. [Properties of Bilayer Graphene](#)

H32. [Excitonic Devices from 2D Materials](#)

H34. [Thermal Transport - Photonic and Nano Effects](#)

- H37a. [Dielectric and Ferroelectric Oxides III](#)
- H41. [Fe-based Superconductors: FeSe](#)
- H43. [Multiferroic Oxides II](#)
- H44. [Dirac and Weyl Semimetals: Theory II](#)
- H45. [Topological Josephson Junction](#)
- H47. [Spin Seebeck and Spin Nernst Effects](#)
- H48. [Single-Spin Systems in Semiconductors](#)
- H50. [Single-Molecule Magnets and Q-bits](#)

Session K

- K1. [Van der Waals Bonding in Advanced Materials I](#)
- K2. [Materials in Extremes V](#)
- K7. [First-Principles Modeling of Excited State Phenomena IV: Molecular Systems and Singlet Fission](#)
- K11. [Organic Electronics - Processing, Structure, Function](#)
- K15. [Complex phases: Colloids and Quasicrystals](#)
- K28. [Dopants and Defects in Semiconductors V: Solar and Detector Materials](#)
- K30. [Transition Metal Dichalcogenides: Processing and Applications](#)
- K31. [THz and Ultrafast Measurements in 2D Materials](#)
- K32. [Phosphorus Devices and Device Physics](#)
- K33. [Computational Discovery and Design of Novel Materials VIII](#)
- K34. [Hybrid Organic-Inorganic Halide Perovskites I](#)
- K36. [Novel Photonic and Optical Phenomena in Nanostructured Materials](#)
- K37a. [Complex Oxide Interfaces and Heterostructures - Oxide 2-DEGs](#)
- K43. [Spin Orbit Physics in Oxides III](#)
- K44. [Dirac and Weyl Semimetals: Transport II](#)
- K45. [Topological Materials: Synthesis and Characterization -- Other Materials](#)
- K47. [Magnons and Magnonic Devices](#)
- K48. [Spin Transport in Topological Insulators](#)
- K50. [Nanomagnets](#)

Session L

- L1. [Van der Waals Bonding in Advanced Materials II](#)
- L2. [Materials in Extremes VI](#)
- L7. [First-Principles Modeling of Excited State Phenomena V: Low-Dimensional Systems](#)
- L16. [Superconductivity: Spin Triplet](#)
- L28. [Dopants and Defects in Semiconductors VI: Compound and 2D Semiconductors](#)
- L30. [Transition Metal Dichalcogenides: Synthesis and Characterization](#)
- L31. [Superconductivity and Correlated States in 2D Materials I](#)
- L32. [2D Materials and Device Characterizations](#)
- L33. [Graphene: Synthesis and Nanoribbons](#)
- L34. [Thermal Transport Modeling - Novel Approaches](#)
- L37a. [Dielectric and Ferroelectric Oxides IV](#)
- L37b. [Complex Oxide Interfaces and Heterostructures - Nickelates, Vanadates and VO₂](#)
- L39. [Fe-based Superconductors: Orbital Effects and Nematicity](#)
- L43. [Manganites and Cobaltites](#)
- L44. [Dirac and Weyl Semimetals: ARPES](#)
- L45. [Superconducting Topological Insulator](#)
- L47. [Spin-Orbit Torque II](#)
- L48. [Frustrated Magnetism: Spin Ice](#)
- L49. [Valley, Spin and Topological Physics](#)
- L50. [Spin-Orbit Mediated Chiral Spin Textures II](#)

Session P

- P1. Van der Waals Bonding in Advanced Materials III
- P2. Materials in Extremes VII
- P7. First-Principles Modeling of Excited State Phenomena VI: Semiconductors and Oxides
- P23. Novel 2D Semiconductors
- P28. Dopants and Defects in Semiconductors VII
- P30. Transition Metal Dichalcogenides: Optical Properties
- P31. Magnetism in 2D Materials II
- P32. Mechanical Properties and Micromechanical Devices from 2D Materials
- P34. Nanoscale Charge Transport
- P35. Surface Science of Organic Molecular Solids, Films, and Nanostructures II
- P37a. Dielectric and Ferroelectric Oxides V
- P41. Fe-based Superconductors: Theory and Computational
- P42. Spin Transport in Graphene
- P43. Manganite Films
- P44. Dirac and Weyl Semimetals: Theory III
- P45. Majorana Nanowire Based Topological Devices
- P47. Spin Transport and Topology
- P48. Frustrated Magnetism: Quantum Spin Ice
- P50. Spin Chains and Quasi-Low-D Molecular Magnets

Session R

- R1. Van der Waals Bonding in Advanced Materials IV
- R2. Materials in Extremes VIII
- R7. First-Principles Modeling of Excited State Phenomena VII: Phonons and Electron Dynamics
- R30. Transition Metal Dichalcogenides: Structure and Defects
- R31. Nanoribbons: Graphene and Beyond
- R32. Computational Discovery and Design of Novel Materials IX
- R33. Advanced Spectroscopy
- R34. Nanostructures and Metamaterials
- R36. Optical Spectroscopic Measurements of 2D Materials
- R37a. Dielectric and Ferroelectric Oxides VI
- R39. Fe-based Superconductors: Nematicity II
- R42. Spins in Semiconductors, Hyperfine and Spin-Orbit Coupling
- R43. Magnetic Oxide Interfaces
- R44. Dirac and Weyl Semimetals: Optics II
- R45. Exotic Topological Superconductors
- R47. Spin-Orbit Torque III and Chiral Domain Walls
- R48. Frustrated Magnetism: Kagome
- R50. Artificial Spin Ice and Honeycomb Structures

Session S

- S2. Materials in Extremes IX
- S7. Theory and Simulation of Fiber-Based Materials
- S30. 2D Materials Modeling of Synthesis and Defects
- S31. Superconductivity and Correlated States in 2D Materials II
- S32. Computational Discovery and Design of Novel Materials X
- S33. Structural and Electronic Properties
- S34. Plasmonics
- S35. Surface Science of Organic Molecular Solids, Films, and Nanostructures III
- S37a. Complex Oxide Interfaces and Heterostructures - Defects at Oxide Interfaces
- S43. Electric Field and Optical Effects in Magnetic Oxide Heterostructures

- S44. [Dirac and Weyl Semimetals: Theory IV](#)
- S45. [Transport Signature of Majorana Nanowires](#)
- S47. [Magnetization Dynamics II, Metals and Insulators](#)
- S48. [Frustrated Magnetism: Spin Liquids II](#)
- S50. [Molecular Magnets: STM, Ad-atoms, Interfaces](#)

Session V

- V1. [2D Electronic Devices and Device Physics](#)
- V30. [Photoluminescence and Polarons in 2D Materials](#)
- V31. [Superconductivity and Correlated States in 2D Materials III](#)
- V32. [Computational Discovery and Design of Novel Materials XI](#)
- V34. [Advanced Metamaterials](#)
- V37a. [Dielectric and Ferroelectric Oxides VII](#)
- V37b. [Session Topological Materials: Theory and Modeling](#)
- V41. [Fe-based Superconductivity. Spectroscopies](#)
- V42. [Spin Transport in Low-Dimensional Systems](#)
- V43. [Iridate Heterostructures](#)
- V44. [Dirac and Weyl Semimetals: Theory V](#)
- V45. [Quantum Hall Effect and Superconductivity](#)
- V47. [Magnetization Dynamics II, Damping and Spin Pumping](#)
- V48. [Frustrated Magnetism: Spin Liquids](#)
- V50. [Skyrmions](#)

Session X

- X30. [Transport and Noise in 2D Materials](#)
- X31. [2D Materials: Synthesis, Structure, and Properties](#)
- X32. [Computational Discovery and Design of Novel Materials XII](#)
- X34. [Plasmonic Metamaterials](#)
- X37a. [Complex Oxide Interfaces and Heterostructures VII](#)
- X41. [Fe-based Superconductivity: Magnetic Excitations](#)
- X42. [Spin Transport in III-V and Group IV Semiconductors](#)
- X43. [Defects and Structural Control in Magnetic Oxide Heterostructures](#)
- X44. [Dirac and Weyl Semimetals: Transport III](#)
- X45. [Two-Dimensional Topological Superconductors: II](#)
- X47. [Domain Wall Motion](#)
- X48. [Frustrated Magnetism: 2D Antiferromagnets](#)
- X50. [Nanoscale Magnetic Dynamics](#)

Session Y

- Y26. [Fe-based Superconductivity: FeSe Monolayers](#)
- Y30. [Properties of Multilayer 2D Materials and Heterostructures](#)
- Y31. [Magnetism, Superconductivity, and Spin-Orbit Effects in 2D Materials](#)
- Y32. [Computational Discovery and Design of Novel Materials XIII](#)
- Y33. [2D Semiconductor Electronic Devices](#)
- Y34. [Quantum Effects in Plasmonic Metamaterials](#)
- Y36. [Thermoelectrics: Characterization, Nanostructures](#)
- Y37a. [Dielectric and Ferroelectric Oxides VIII](#)
- Y41. [Fe-based Superconductivity. C 4 and other Subjects](#)
- Y42. [Solid-State Hole Spin Qubits](#)
- Y43. [Bulk Oxides](#)
- Y45. [Topological Superconductivity: Theory](#)
- Y47. [Spin Transfer Torque and Magnetic Tunnel Junctions](#)

- Y48. [Frustrated Magnetism: Spin Glasses and 2D Magnets](#)
Y50. [Molecular Nanomagnets, Clusters, and Networks](#)

March Meeting: Pre-meeting Workshops

DPOLY Short Course on Polymer Colloids: Synthesis, Characterization and Application

Saturday, March 11, 1:00 pm - 6:00 pm, Room 288

Sunday, March 12, 8:30 am - 6:00 pm, Room 288

Finding Your Scientific Voice: Improving Your March Meeting Presentation

March 12, 9:00 am -12:00pm, and 1:30 pm- 4:30 pm, Room 287

Communication and Negotiation Seminar for Women

March 12, 4:00 pm- 6:00 pm, Room 297

First-Time Attendee Orientation

March 12, 6:00 pm- 7:00 pm, New Orleans Marriott Salon D

Future of Physics Days Undergraduate Meet and Greet

March 12, 7:00 pm- 8:30 pm, New Orleans Marriott Salon D

Official Tweetup

Sunday, March 12, 7:30 pm - 9:00 pm

Barcardia, 601 Tchoupitoulas Street, New Orleans, Louisiana 70130

March Meeting: Tutorials

Sunday, March 12

Morning Tutorials, Convention Center, 8:30 a.m. - 12:30 p.m.

Tutorial #1: Quantum Photonics (Room 292)

Instructors: Darrick Chang, ICFO, Javier Garcia de Abajo, ICFO-Spain, Mikhail Lukin, Harvard University, Vlad Shalaev, Purdue University

Tutorial #2: Electron Phonon Interactions (Room 289)

Instructors: Feliciano Giustino, Oxford University, Chris G. Van de Walle, University of California, Santa Barbara, Carsten Ullrich, University of Missouri, Mark van Schilfhaarde, King's College

Tutorial #3: Topological Insulators (Room 293)

Instructors: B. Andrei Bernevig, Princeton University, Piers Coleman, Rutgers University, Çağliyan Kurdak, University of Michigan, Ann Arbor, Nitin Samarth, Penn State Univ.

Tutorial #4: Current Research in Many-Body Localization (Room 290)

Instructors: Vadim Oganessian, City University of New York, New York, Sarang Gopalakrishnan, City University of New York, New York, David Luitz, Technical University of Munich, Germany, Ulrich Schneider, Cambridge University, Cambridge

Afternoon Tutorials, Convention Center, 1:30 p.m. - 5:30 p.m.

Tutorial #5: Weyl Semi-metals (Room 293)

Instructors: Andrei Bernevig, Princeton University, Anton Burkov, Univ. of Waterloo, Nai Phuan Ong, Princeton University, Siddharth Parameswaran, Univ. of California at Irvine

Tutorial #6: Computation in the undergraduate curriculum (Room 290)

Instructors: Danny Caballero, Michigan State University, Norman Chonacky, Yale University, Larry P. Engelhardt, Francis Marion University, Robert Hilborn, American Association of Physics Teachers, Marie Lopez del Puerto, University of St. Thomas, Kelly Roos, Bradley University

Tutorial #7: Topological Physics with Cold Atoms (Room 292)

Instructors: Wolfgang Ketterle, Massachusetts Institute of Technology, Ian Spielman, National Institute of Standards and Technology, Christof Weitenberg, University of Hamburg, Hui Zhai, Tsinghua University

Tutorial #8: Active Matter (Room 289)

Instructors: Sriram Ramaswamy, TCIS, Hyderabad, India, Tom Powers, Dept. of Physics, Brown U., Aparna Baskaran, Dept of Physic, Brandeis University

March Meeting: Editorial Events:

Meet the APS Editors Reception & Coffee Break

Reception: Convention Center, TBD; Tuesday, March 14, 4:30 – 6:00 pm, Hall I-2

Coffee Break: Convention Center, TBD; Wednesday, March 15, 10:45 - 11:30 am, Hall J

The editors of the APS journals invite you to join them for a reception and a coffee break. The editors will be available to answer questions, hear ideas, and discuss comments about the journals.