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## **APS DAP Officers 2019–2020:**

- Chair: Joshua Frieman
- Chair-Elect: Glennys Farrar
- Vice Chair: Chris Fryer
- Past Chair: Priyamvada Natarajan
- Secretary/Treasurer: Judith Racusin
- Deputy Sec./Treasurer: Amy Furniss
- Division Councilor: Cole Miller
- Member-at-Large: Marilena Loverde
- Member-at-Large: Tonia Venters
- Member-at-Large: Stefano Profumo
- Member-at-Large: Ignacio Taboada

## ***Questions? Comments?***

Newsletter editors:

### **Amy Furniss**

amy.furniss@csueastbay.edu

### **Judith Racusin**

judith.racusin@nasa.gov

# **APS Division of Astrophysics**

## **Electronic Newsletter**

***December 20 2019***



Finalize your plans now to attend the April 2020 meeting held this year in Washington, DC. A number of plenary and invited sessions will feature presentations by DAP members. Here are the key details:

**What:** April 2020 APS Meeting

**When:** April 18 - 21 2020

**Where:** Washington, DC

**Abstract Deadline:** Jan 10 2020

**Student Travel Grant Deadline:** Jan 17 2020

**Early Registration Deadline:** Feb 28 2020

**Late Registration Deadline:** Mar 27 2020

The 2020 April Meeting will take place at the *Washington Marriott Wardman Park*.

Detailed information for the meeting, including details on registration and the scientific program can be found online at <http://www.aps.org/meetings/april>

**Note that you can still register on-site, if you don't do so by the deadline. Registration fees range from \$110 for undergraduates to \$495 for full members. Members of certain foreign APS partner societies get reduced registration fees relative to general non-members.**

Dear DAP,

Please see the December 2019 DAP newsletter. It will be archived on the DAP website (<https://www.aps.org/units/dap/newsletters/index.cfm>). If you have content you'd like to include in a future newsletter or distribute to DAP membership, please send it to us at [dapsectreas@googlegroups.com](mailto:dapsectreas@googlegroups.com).

For questions, suggestions, feedback, please contact the DAP Executive Committee at [dap-exec@googlegroups.com](mailto:dap-exec@googlegroups.com)

## 2019 APS Fellows

Please join the DAP Executive Committee in congratulating the 2019 American Physical Society Fellows who are members of the Division of Astrophysics:

- **Connolly, Amy L** (Ohio State University): For contributions to experimental and theoretical studies of ultrahigh energy neutrinos, and to searches for these neutrinos using radio techniques.
- **Corsi, Alessandra** (Texas Tech University): For major contributions to the discovery of both gravitational wave sources and their electromagnetic counterparts.
- **Cui, Wei** (Tsinghua University): For multiwavelength contributions to observations of black hole phenomena, including the study of jets related to both stellar mass and super massive black holes, the elucidation of the acceleration mechanisms in active galactic nuclei, and the relation of X-ray quasi-periodic oscillations to Lense–Thirring precession.
- **Ghez, Andrea M** (University of California, Los Angeles): For the advancement of diffraction-limited observing techniques and pathbreaking measurements that established the existence of a supermassive black hole at the center of the Milky Way Galaxy, and made possible a variety of other discoveries.
- **Jha, Saurabh W** (Rutgers University): For critical contributions to a deeper understanding of Type Ia supernovae, and to their exploitation as cosmological probes.
- **Mathieu, Robert D.** (University of Wisconsin–Madison): For pioneering studies of binary stars in clusters, including the discovery of alternative pathways of stellar evolution, and for building a national network on the principle of integrating research, teaching, and learning in STEM education to prepare our nation's future faculty.
- **Williams, David A** (University of California, Santa Cruz): For contributions to the study of gamma rays from extragalactic sources such as gamma-ray bursts and blazars, for using gamma-ray data to test cosmological models of the extragalactic background light, and for leadership in the development of past, present, and future ground-based gamma-ray telescopes.

## 2020 Bethe Prize



Please join the DAP Executive Committee in congratulating **Fiona Harrison** (California Institute of Technology), the 2020 recipient of the DAP-DNP Hans A. Bethe Prize.

The citation reads: *“for pioneering work in conceiving and executing the first focusing telescope in the high energy X-ray regime, NASA’s Nuclear Spectroscopic Telescope Array (NuSTAR) satellite. NuSTAR has enabled major advances in understanding phenomena in the most extreme environments in the universe.*

## APS Fellows and DAP Membership

Although nominations have closed for this year, please consider nominating a deserving colleague for 2020 APS Fellowship. Nominations will be due in June 2020.

In order to ensure a strong Division of Astrophysics, we ask you to encourage your colleagues to join the APS and to join the DAP (at marginal extra cost) if they have not already done so. Moreover, if you have colleagues whom you would like to nominate as APS Fellows but who are not currently APS/DAP members, please encourage them to join as soon as possible: only APS members are eligible for Fellowship, and they must be Members in good standing as of January 1 of the preceding year to be eligible for nomination and election to Fellowship.

### **Eligibility and application details:**

<https://www.aps.org/programs/honors/fellowships/index.cfm>

# Encourage your students to join the APS and DAP

The next generation of physicists are current students. The APS has many programs to help students grow their careers. Students can join the APS with the first year free and the low rate of \$39/year thereafter; they can join up to two Divisions and Topical Groups for free. Please see the APS website for details.

Once students are members, students are eligible to give talks at APS meetings, apply for travel support and merit-based awards, and more. Student DAP members can apply for up to \$600 in travel support to attend the April Meeting; they can also be nominated to be considered for the Thesis Prize, which includes giving an invited talk with additional travel support.

One of the main goals of the APS is to "advance and diffuse the knowledge of physics." This includes advocacy with the government and the press, connecting different parts of the community, publishing leading journals, running meetings with great opportunities for students, providing professional recognition, and more. In a similar way, the DAP works to advance and diffuse the knowledge of astrophysics, which includes helping the APS carry out the above missions.

Astrophysics is on a great run of important discoveries that impact many fields. We are working to grow the scope of the DAP to better include new developments in cosmology, gravitation, particle and nuclear astrophysics, and more. Advisors can play a crucial role in encouraging their students to join the APS and DAP. Please forward this to yours!

## DAP Student and Postdoc Travel Grants

Undergraduate students, graduate students, and postdocs may apply for travel grants to attend the April meetings. Applicants must be a member of DAP and presenting in a DAP session or joint session. Grants provide \$600 for those participating in DAP sessions, \$300 for those in joint sessions (can be coordinated with other units).

Application deadline: **January 17, 2020**. Eligibility and application details available at:

<https://www.aps.org/units/dap/awards/student-travel.cfm>

# April APS Meeting, 2020

Washington, D.C., April 18-21 (Sat 8:30 am - Tues 3:30 pm)

## **Plenary Program** (Han Tao, April Meeting Program Chair)

### **Kavli Keynote Plenary: Exploring the Cosmos** (8:30am, April 18, Saturday)

- James Peebles (Princeton Univ.)
- Michel Mayor (Univ. of Geneva)
- The Three-Legged Stool -- Eric Cornell (JILA, Univ. of Colorado)

### **Plenary II: Multi-messenger Probes of Fundamental Physics** (8:30am, April 20, Monday)

- LIGO/Virgo: Multi-messenger observations -- Laura Cadonati (Univ. of Virginia)
- GAIA observations -- Amina Helmi (Univ. of Amsterdam)
- NICER News -- Zaven Arzoumanian (NASA)

### **Plenary III: Frontiers of Discovery: Flavor, Color and Exoplanets** (8:30am, April 21, Tuesday)

- Exoplanets -- Didier Queloz (Univ. of Geneva)
- "Who ordered That?" Fermilab muon physics program -- Chris Polly (FNAL)
- 20 years of RHIC and Beyond -- Larry McLerran (Univ. of Washington-Seattle)

**Public Lecture Saturday night 7 pm:** Event Horizon Telescope -- Shep Doeleman

## **DAP-sponsored Invited Sessions** (Glennys Farrar, DAP Program Chair)

### **Our Neighborly Supermassive Black Holes** (Nicolas Yunes, Chair) **[co-sponsored with DGRAV]**

- Imaging Supermassive Black Holes with the Event Horizon Telescope: Current Results and Future Prospects -- *Michael Johnson*
- Photographing a black hole: the first results from the Event Horizon Telescope and the next steps towards understanding black holes -- *Monika Moscibrodzka*
- New results from GRAVITY -- *Reinhard Genzel*

### **Frontiers of AMO in Astrophysics** (Derek Jackson Kimball, chair) **[co-sponsored with DAMOP]**

- Atomic Gravitational Wave Detectors -- *Jason Hogan*
- Probing Dark Matter in the Milky Way with Direct Measurements of Stellar Accelerations -- *Dan Phillips*
- Astro-combs enabled exoplanet searches - *Scott Diddams*

### **Aspects of Multimessenger Astrophysics** (Robert Garisto, chair) **[co-sponsored with Phys. Rev.]**

- Gravitational-Wave Multimessenger Astrophysics -- *Tyson Littenberg*
- Neutrino Multimessenger Astrophysics -- *Naoko Kurahashi Neilson*
- Electromagnetic Multimessenger Astrophysics -- *Wen-Fai Fong*

**From the Sun to the Highest Energies in the Universe** (Tom Gaisser, chair)

- The Parker Solar Probe and its remarkable findings -- *Justin Kasper*
- Ultrahigh Energy Cosmic Rays -- *Michael Unger*
- Progress in Simulating Particle Acceleration: Different Flavors of Fermi Mechanism -- *Damiano Caprioli*

**Neutrino Astrophysics** (Kate Scholberg, chair) **[co-sponsored with DPF]**

- Recent Results in High-Energy Neutrino Astrophysics -- *Ignacio Taboada*
- Recent Results From Supernova Neutrino Theory -- *Irene Tamborra*
- Late Neutrinos of SN1987a -- *Kfir Blum*

**Nuclear Physics with Gravitational Wave Observations** (Sanjay Reddy, chair) **[co-sponsored with DGRAV]**

- Neutron Star Mergers as Sites of Heavy Element Synthesis -- *Brian Metzger*
- Compact object mergers and implications for nuclear physics — *Andreas Bauswein*
- Inferring the equation of state of dense nuclear matter using multimessenger observations of neutron stars — *Collin Capano*

**Axion Cosmology and Astrophysics** (Mina Arvanitaki, chair)

- Intensity Mapping: a New Tool for Dark Matter (and more) -- *Anthony Pullen*
- Toward reliable calculation of DM relic abundance for QCD axions - *G. Villadoro (tbc)*
- Would Ultra Light Dark Matter Particles Solve the Cosmological Puzzles? -- *Jeremiah Ostriker*

**Indirect Constraints on Dark Matter** (Jodi Cooley, chair) **[co-sponsored with DPF]**

- Classic Approaches to Indirect Detection -- *Tracy Slatyer*
- X-ray Searches for Axions from Nearby Isolated Neutron Stars -- *Ben Safdi*
- Searching for Dark Matter Interactions in Cosmology -- *Kim Boddy*

**Fast Radio Bursts and Tidal Disruption Events** (Yuri Levin, chair)

- Fast Radio Bursts and hi-z Cosmology with CHIME -- *Kiyoshi Matsui*
- Theory of Fast Radio Bursts -- *Andrei Beloborodov*
- The Burgeoning Role of Tidal Disruption Events as Tools for Black Hole Astrophysics -- *Sjoert Van Velzen*

**New Approaches to H<sub>0</sub>** (Glennys Farrar, chair) **[co-sponsored with DGRAV]**

- Local Distance Ladder Measurements and Determination of the Hubble Constant -- *Wendy Freedman*
- An Independent Measurement of H<sub>0</sub> from Lensed Quasars -- *Kenneth Wong*
- CMB measurements of H<sub>0</sub> and new results from ACT+WMAP -- *Suzanne Staggs*
- Bonus talk (schedule permitting): update from SHOES

**DAP Award Session** (Josh Frieman, Chair)

- **Bethe Prize Talk:** Ultraluminous X-ray Sources: Extremes of Accretion and the Search for Intermediate Mass Black Holes -- *Fiona Harrison*
- **Maria Goeppart-Mayer Award Presentation:** Cosmology with Large Galaxy Surveys -- *Elisabeth Krause*
- **Lillienfeld Prize talk:** Why Galaxies Start Pickle-Shaped: An Historical Introduction to Dark Matter and Galaxy Formation -- *Joel Primack*

**Decadal Survey and Future Directions** (Josh Frieman, Chair)

Fiona Harrison, other speakers TBD.

**Cecilia Payne-Gaposchkin Thesis Prize** (Ignacio Taboada, Chair)

## **DAP-sponsored mini-symposium**

**Advances in Spectroscopic Cosmology** (Paul Martini, chair)

30 minute talk by Kyle Dawson; ***shorter talks via abstract submission*** (A22).

## **DAP Abstract Sorting Categories (some in common with other units)**

- A01.** Astrophysics: General Topics
- A02.** Dark Matter Astrophysics
- A03.** Dark Matter Constraints
- A04.** Dark Matter Theory and Cosmology
- A05.** Early Universe and Dark Energy
- A06.** Large Scale Structure and CMB
- A07.** Cosmology with Gravitational Waves
- A08.** Gravitational Wave Astronomy
- A09.** Compact Object Mergers
- A10.** Formation and Growth of Black Holes
- A11.** Merger Outflows and Jets
- A12.** Supernovae, Gamma-Ray Bursts, and Other Transients
- A13.** Pulsars and Neutron Stars
- A14.** Cosmic Rays: Sources and Acceleration
- A15.** Cosmic Rays: Spectrum and Composition
- A16.** Gamma Ray Astronomy
- A17.** Neutrino Astronomy
- A18.** Stars; the Interstellar Medium and Magnetic Fields
- A19.** Exoplanets, Planetary Physics, and Solar Physics
- A20.** Missions, Instruments, and Surveys
- A21.** New, Future, and Upgraded Observatories
- A22.** Advances in Spectroscopic Cosmology Minisymposium

# Snowmass Update

The DPF, with input from DAP and DPB, is currently organizing the next HEP Community Planning Exercise (Snowmass). The summer study will be **July 11 - 20, 2021**. One topical area is Cosmic Frontier, which is of clear relevance to DAP members. The co-convenors and site are currently being selected. Sub-topic co-convenors will be selected in early 2020. For details see <https://www.aps.org/units/dpf/snowmass-2021.cfm> .

## Upcoming Conferences of Interest

If you would like conferences added to this list in upcoming newsletters, please contact [dapsectreas@googlegroups.com](mailto:dapsectreas@googlegroups.com).

### **235th Meeting of the American Astronomical Society (Joint with AAS Historical Astronomy and High Energy Astrophysics Divisions)**

*Location:* Honolulu, Hawaii

*Dates:* Jan 4-8, 2020

<https://aas.org/meetings/aas235>

### **Magnetic Fields in the Universe 7**

*Location:* Quy Nhon, Vietnam

*Dates:* Feb 16-22, 2020

[https://www.icisequynhon.com/conferences/2020/magnetic\\_fields/](https://www.icisequynhon.com/conferences/2020/magnetic_fields/)

### **9th International Fermi Symposium**

*Location:* Johannesburg, South Africa

*Dates:* March 29 - April 3, 2020

<https://fermi.gsfc.nasa.gov/science/mtgs/symposia/2020/>



# DAP Executive Committee Candidates

This year there are three positions on the DAP Executive Committee open for election; one position in the chair line and two member-at-large positions. Please see the candidate information below. The election will open around the new year and close on **January 24th 2020**. Information on how to cast your vote will be sent to the DAP list as soon as the election is open.

## Candidates at a Glance:

- **Laura Blecha** :: University of Florida :: Member-at-large
- **Brad Cenko** :: Goddard Space and Flight Center :: Member-at-large
- **Jonathan Feng** :: University of California, Irvine :: Member- at-large
- **Zoltan Haiman** :: Columbia University :: Member-at-large
- **Dan Holz** :: University of Chicago :: Chair line
- **Erin Kara** :: Massachusetts Institute of Technology :: Member-at-large
- **Pete Roming** :: Southwest Research Institute :: Chair line
- **John Ruhl** :: Case Western Reserve University :: Member-at-large

## Candidates for One Chairline Position

**Candidate Election Position:** Chairline

**Candidate Name:** Daniel Holz

**Institution:** University of Chicago

**Email address:** blackhole@uchicago.edu

### ***Brief Resume for Daniel Holz:***

*Daniel Holz is a Professor of Physics and Astronomy & Astrophysics at the University of Chicago. He received his A.B. from Princeton and his Ph.D. from the University of Chicago. After postdoctoral positions at the Albert Einstein Institute, the Kavli Institute for Theoretical Physics, and the Kavli Institute for Cosmological Physics, he became a Richard Feynman Fellow and staff member at Los Alamos National Laboratory. He joined the University of Chicago faculty in 2011.*

*Holz has received a National Science Foundation CAREER Award, a Quantrell Award for Excellence in Undergraduate Teaching, and as a member of LIGO has received the Gruber*

*Cosmology Prize and the Breakthrough Prize in Fundamental Physics. He was elected an APS Fellow in 2017. He served in the Chair-line of APS TGR/DGRAV in 2012–2014, served on the 2014 APS Task Force to Re-envision the April Meeting, and was Chair of the 2017 April meeting. Holz is currently serving on the Astro2020 Decadal Review Panel on Compact Objects and Energetic Phenomena, and is a Faculty Diversity Liaison to the UChicago Provost's office. He is also a member of the Science and Security Board of the Bulletin of the Atomic Scientists, and in this role helps set the time of the Doomsday Clock.*

*Holz has worked on gravitational lensing, dark matter theory, cosmological structure formation, and stellar population synthesis. He is a member of LIGO, and his recent work has been on gravitational-wave astrophysics and cosmology, focusing on standard sirens, electromagnetic follow-up of gravitational-wave events, gravitational-wave source populations, and the formation and evolution of compact binary systems.*

### **Candidate Statement for Daniel Holz:**

*The Division of Astrophysics has a unique role to play within the APS. Astrophysics is a vital component of the broader physics community, with direct connections to nuclear physics, particle physics, general relativity, plasma physics, computational physics, and atomic, molecular & optical physics. DAP can continue its essential mission in helping to bridge the gaps between these communities. The foremost example of this is the APS April meeting, which has been growing in size, excitement, and vitality over the past years. This meeting offers a unique opportunity to foster astrophysical interaction and collaboration across the physics discipline. I served on the 2014 APS Task Force to Re-envision the April Meeting, and I believe there are tremendous opportunities for DAP to continue to build on the current momentum.*

*Furthermore, astrophysics offers a particularly effective way to engage the broader public, and DAP should continue its significant role in education and outreach. We can be at the forefront of bringing the beauty and excitement of cutting-edge scientific discoveries to the public. This is of particular urgency at a time when the world is facing important scientific and technological challenges. In addition, the astrophysics community has been particularly engaged on issues of equity, diversity, and inclusion, and DAP can help foster progress on these issues within the larger APS community. We need to continue to highlight achievements from across our membership, and to ensure that our meetings and activities are broadly representative. DAP can also further build its activities supporting the career development of young scientists, including awards, speaking opportunities, and facilitating networking and mentoring.*

*Astrophysics is incredibly vibrant and dynamic, with an explosion of activity and scientific progress at the interface with physics. The APS Division of Astrophysics is poised to play an ever greater role in fostering this science.*

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**Candidate Election Position:** Chairline

**Name:** Pete Roming

**Institution:** Southwest Research Institute

**Email address:** proming@swri.edu

**Brief Resume for Pete Roming:**

*Pete Roming is currently a Department Director in the Space Science and Engineering Division at Southwest Research Institute (SwRI) and oversees the Astrophysics and Remote Sensing Section. He received a B.S. in Physics (1991) and a Ph.D. in Physics & Astronomy (1998) from Brigham Young University. He was a member of the research faculty at Penn State University (1998-2010) before being invited to SwRI to start and then lead the astrophysics group (2010-2017).*

*He is a four-time recipient of a NASA Group Achievement Award (2000, 2001, 2005, 2007), Senior Life Member of the Photo-Optical Instrumentation Engineers (2015), and part of the NASA Swift Gamma-Ray Burst team that received the High Energy Astrophysics Division Bruno Rossi Prize (2007) and the Muhlmann Award (2009).*

*His professional activities include: Principal Investigator for the Neil Gehrels Swift Ultra-Violet/Optical Telescope (2000-2010); Principal Investigator for the NASA SMEX Concept Study, Joint Astrophysics Nascent Universe Satellite (JANUS: 2007-2009); Member of the Editorial Board for IAU Symposium Proceedings Series (2011); Co-Principal Investigator for the Spectrograph and Camera for Observations of Rapid Phenomena in the Infrared and Optical (SCORPIO; 2014-); Member of the Thirty Meter Telescope, Time Domain Science, International Science Development Team (2016-); and the NASA Great Observatories Science Analysis Group (2018-2019). As part of his professional activities, he works closely with universities and national labs, including holding a position as an Adjoint Professor of Physics & Astronomy at the University of Texas, San Antonio (2013-).*

*Roming's research interests fall into three main categories: space- and ground-based astronomical instrumentation and detectors, the death of massive stars as astronomical probes (particularly gamma-ray bursts and core collapse supernovae), and early Universe cosmology.*

**Candidate Statement for Pete Roming:**

*The coming decade offers the promise of thrilling breakthroughs in the field of astrophysics, particularly during the era of multi-messenger GWs, JWST, ELTs, big data (e.g. LSST), etc. Some of these potential breakthroughs include: discovering Earth2 planets, exploring the composition of exoplanet atmospheres, uncovering the earliest ( $z > 10$ ) gravitationally collapsed objects, probing the patchiness of the epoch of reionization, exploration of GW producing objects, discovery of new types of transients during the follow up of hundreds of thousands of LSST targets, etc.*

*The combination of theorists, observers, and instrument builders in the different astrophysics disciplines, coupled with input from other physics disciplines, will be important for addressing the scientific challenges we will face in the next decade. As the astrophysics leader within the APS, the DAP provides a fertile ground to build these valuable interactions between the disciplines. As*

*part of the DAP executive committee, I would work to bridge these scientists and disciplines, including the use of DAP multi-physics sessions.*

*Because of the excitement and skillset that astrophysics engenders, the DAP is also in a strong position to influence education and public outreach (EPO) to the next generation of scientists. We are fortunate to be able to participate in a field that attracts very bright undergraduate, graduate, and postdoctoral students. To continue attracting such talent, we need to continue reaching out to pre-college students at all levels. I believe it important for the DAP to keep EPO as a key component of its efforts, but to also assist current students and postdocs interested in using their astrophysics skillset in non-traditional science and non-science careers*

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## **Candidates for Two Member-at-Large Positions**

**Candidate Election Position:** Member-at-large

**Name:** Laura Blecha

**Institution:** University of Florida

**Email address:** lblecha@ufl.edu

### ***Brief Resume for Laura Blecha***

*Laura Blecha is an Assistant Professor of Physics at the University of Florida. She received a B.S. in Physics and Integrated Science from Northwestern University (2005), an M.Phil. in Astronomy from Cambridge University, and a Ph.D. in Astronomy & Astrophysics from Harvard University (2012). She was a NASA Einstein Fellow and a Joint Space-Science Institute Prize Postdoc at the University of Maryland before joining the University of Florida faculty in 2017.*

*She is an Associate Member of the LISA Consortium and the NANOGrav Collaboration. Currently, she is also serving as an elected member of the Physics Departmental Advisory Committee at UF.*

*Her recent activities to promote equity and inclusion in physics include serving as faculty coordinator for the Promoting Inclusive Physics & Astronomy group at UF, organizing annual celebrations of the UN's International Day of Women & Girls in Science, organizing a seminar series focused on diversity and inclusion at the University of Maryland, and serving as a mentor for Maryland Astronomy's bridge program, GRAD-MAP.*

*Blecha is a theoretical and computational astrophysicist whose research focuses primarily on the evolution of supermassive black holes and galaxies, including black hole formation, fueling, and feedback, galaxy mergers, gravitational-wave source populations, and the gravitational-wave and multi-messenger signatures of binary black holes.*

## **Candidate Statement for Laura Blecha:**

*The landscape of astrophysics has dramatically widened with the recent detection of gravitational waves and multi-messenger signals. This, coupled with theoretical model constraints from pulsar timing arrays and the successful observation of a black hole “shadow” by the Event Horizon Telescope, has fundamentally intertwined the roles of gravitational theorist and astronomical observer. The APS Division of Astrophysics has a unique role to play in strengthening this new bridge and fostering advances in the nascent field of multi-messenger astrophysics. As a physicist who works within both the gravitational-wave and astronomical communities, I will work toward this goal by building interdisciplinary connections with other APS divisions, including via organization of sessions at APS meetings.*

*As we revolutionize our approach to astrophysics in this new era, we have a crucial opportunity to reimagine other aspects of how our science is conducted. Systemic biases continue to create barriers to full participation of marginalized groups in physics, including Black, Latinx, and Native American scientists, as well as gender minorities, people with disabilities, and the LGBTQ+ community. As a Member-At-Large, I will work with the Executive Committee to promote an inclusive climate and counteract barriers to access for underrepresented groups. In the context of APS meeting organization, this can include encouraging the participation of a diverse group of speakers, exploring new ways to recognize the achievements of underrepresented physicists, seeking to provide networking and community-building opportunities for marginalized groups, and supporting efforts to ensure the Code of Conduct is respected at APS meetings. I will also support the broader efforts of APS to make physics more inclusive and diverse. I believe that DAP should also prioritize career development and visibility for junior scientists, and I will support efforts to create such opportunities. Finally, the ability of astrophysics to inspire public interest creates unique opportunities for DAP to participate in education and outreach efforts, which I consider an important role as well.*

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**Candidate Election Position:** Member-at-large

**Name:** Brad Cenko

**Institution:** Goddard Space and Flight Center

**Email Address:** brad.cenko@nasa.gov

## **Brief Resume for Brad Cenko:**

*S. Bradley (Brad) Cenko is a Research Astrophysicist at the NASA Goddard Space Flight Center in Greenbelt, MD. He also holds Adjunct Professor positions at the University of Maryland, College Park, and George Washington University. He received a B.A. in Astronomy and Astrophysics from Harvard University in 2002, and a PhD in Physics from the California Institute of Technology in 2008. After postdoctoral study at the University of California, Berkeley (2008-2013), he joined Goddard Space Flight Center as a civil servant in 2013.*

*He currently serves as the Principal Investigator for the Neil Gehrels Swift Observatory, a NASA explorer dedicated to the study of gamma-ray bursts and other cosmic transients. He also serves as Chair of the Science Steering Committee for the Zwicky Transient Facility (ZTF), a wide-field optical telescope located at Palomar Observatory, and is a member of the Transients and Variable Stars Working Group of the Large Synoptic Survey Telescope (LSST).*

*His recent honors include: the Robert H. Goddard Scientific Achievement Award (2016); a Research Corporation Scialog Fellow (2015-2016), and a fellow of the Joint Space-Science Institute.*

*Leno is an observer primarily interested in the study of transient and variable phenomena, including gamma-ray bursts, tidal disruption events, and supernovae. He also has played an active role in recent multi-messenger campaigns, involving both gravitational wave and neutrino detections. Finally, he is also intent on developing instrumentation and software to enable novel observations of such time variable phenomena.*

### **Candidate Statement for Brad Cenko:**

*The next decade promises to be an incredibly exciting time for those of us working at the intersection of Physics and Astronomy. With the discovery of electromagnetic radiation and gravitational waves from a binary neutron star merger (GW170817) and the association of a flaring blazar with a high-energy neutrino (IceCube-170922A) separated by barely more than a month, the dawn of multi-messenger astronomy is finally upon us.*

*My principal vision for the Division of Astrophysics is to be the primary venue for connection between the large physics experiments that are responsible for opening these new windows onto the Universe, and the astronomical community, with its more “traditional” view of these fascinating compact objects. I hope the Division of Astrophysics will play a leading role, not only in disseminating results from these endeavors, but also in laying the groundwork for future multi-messenger discoveries (i.e., advocating for improved coordination across the various relevant funding agencies, bridging the gap between the sometimes quite distinct scientific cultures).*

*I also aim to be a forceful advocate for younger and underrepresented scientists within the Division of Astrophysics, both highlighting the important work already being done by these scientists, and speaking up for a larger leadership role in the Division of Astrophysics and the community more broadly. Particularly given the increasing trend in both Physics and Astronomy towards large, top-down collaborations, finding ways to incentivize and reward young and underrepresented scientists will only become more important in our field.*

*Finally, having been involved in a number of (relatively) large software efforts over the years, I hope to help draw attention to the codes and databases that underlie so much of the research that we conduct today. Large scale computing is a powerful tool for the future of astrophysics, but in order to fully exploit it we must ensure that those responsible are appropriately recognized.*

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**Candidate Election Position:** Member-at-large

**Name:** Jonathan L. Feng

**Institution:** University of California, Irvine

**Email address:** jlf@uci.edu

**Brief Resume for Johnathan Feng:**

*Jonathan Feng is a Professor of Physics and Astronomy at the University of California, Irvine. He received his A.B. in Physics from Harvard in 1988, his M.A. in Mathematics from Cambridge in 1990, and his Ph.D. from Stanford in 1995. After time as a Miller Research Fellow at Berkeley and postdoctoral study at the Institute for Advanced Study and MIT, he joined the UC Irvine faculty in 2002, and became Professor and Chancellor's Fellow in 2006.*

*Feng's research has been supported by the National Science, Sloan, Guggenheim, Heising-Simons, and Simons Foundation. He is currently a Simons Investigator. His service positions include Treasurer of the Aspen Center for Physics, co-chair of the Advisory Board of the Kavli Institute for Theoretical Physics, editor of Physics Reports, and advisory roles for the DOE, NSF, NASA, the T.D. Lee Institute in Shanghai, and Symmetry Magazine. He was a member of the Astro2010 Cosmology and Fundamental Physics Science Panel, co-convener of the Cosmic Frontier at Snowmass 2013, and a member of P5 in 2014. Since 2012 he has been a member of UC Irvine's Advisory Council on Campus, Climate, Culture, and Inclusion, and he founded "What Matters to Me and Why," a speaker series for students, staff, and faculty dedicated to fostering an atmosphere of community on campus.*

*Feng works at the interface of astrophysics and particle physics. His research is focused on the theoretical study of dark matter, but his interests are broad, and he has recently been leading FASER, an experiment that will search for dark sectors and study neutrino interactions at the highest man-made energies ever recorded.*

**Candidate Statement for Johnathan Feng:**

*The DAP holds a special place in the APS. From my vantage point at the interface of astrophysics and particle physics, it has been remarkable how diverse topics in astrophysics, from the identity of dark energy and dark matter, to inflation and baryogenesis and cosmic rays, have become the leading questions in particle physics in the last few years. More generally, the intellectual vitality and breadth of the DAP is truly impressive, and I would like to build on that, both by helping to create fascinating meetings, and by strengthening connections with related Divisions in the APS.*

*Building up a broad base and encouraging a diverse and inclusive atmosphere is also required to preserve and improve the intellectual vitality of the field. The DAP has an intrinsic advantage, in that its questions are among the most broadly appealing, capturing the imagination of students, leaders, and the general public. The DAP should be at the forefront of outreach efforts, encouraging inclusive excellence, and supporting the junior researchers who have entrusted their careers to our field, and an important priority for me will be to work hard toward these goals.*

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**Candidate Election Position:** Member-at-large

**Name:** Zoltan Haiman

**Institution:** Columbia University

**Email address:** zoltan@astro.columbia.edu

***Brief Resume for Zoltan Haiman:***

*Zoltan Haiman is a Professor of Astronomy at Columbia University. He received B.S. degrees in Physics and in Electrical Engineering from MIT (both in 1993), a Certificate of Postgraduate Study in Chemistry from Cambridge University, UK (1994), and a Ph.D. in Astronomy from Harvard University (1998). He was a postdoctoral scientist in the Theoretical Astrophysics Group at Fermilab (1998-1999) and a Hubble Fellow at Princeton University (1999-2002). He joined the faculty at Columbia University in 2002 as an Assistant Professor. He is currently also a faculty member in the Data Science Institute at Columbia.*

*He is a recipient of NASA's Hubble Fellowship (1999-2002), a Gyorgy Bekeky Fellowship from the Hungarian Ministry of Education (2004-2007), an New York Academy of Sciences Blavatnik Award for Young Scientists (2010) and a Simons Fellowship in Theoretical Physics (2016).*

*His recent professional activities include membership in the LISA Science Group (LSG; since 2018), where he co-leads the multi-messenger astrophysics sub-group, and memberships in the Science and Technology Definition Team for Lynx (since 2017), as well as in the NASA-LISA Study Team (NLST; since 2019).*

*His research has covered a broad range of topics in theoretical astrophysics and cosmology, including the formation of the first stars and black holes, gravitational wave astrophysics involving mergers between astrophysical black holes, and probing the nature of dark energy and dark matter. He has recently also been interested in developing tools, including neural networks, to extract cosmological information from large forthcoming Astronomical surveys.*

***Candidate Statement for Zoltan Haiman:***

*As an astrophysicist with broad research interests, mostly on the theoretical side, I have long appreciated the deep connections between Astronomical observations and probing and searching for extensions of the fundamental laws of physics. The Astrophysics Division of the APS is ideally positioned to tighten these connections in both directions. On the one hand, it can emphasize the role of "astro" in the context of broader physics, as a way to probe the laws of nature in regimes that are not accessible to Earth-bound experiments. On the other hand, it can showcase the fundamental physics derived from a wide variety of astronomical research.*

*These goals can be achieved within the APS by facilitating interactions between the DAP and other APS units, and by organizing and promoting special sessions at APS meetings with talks*



*that appeal to as broad an audience as possible, both within the APS, and to astronomers outside the APS. The recent discoveries of gravitational waves from compact object mergers have already tightened connections with nuclear physics, particle physics, plasma physics, many types of experimental physics, and general relativity. The DAP can strengthen these connections, and anticipate further multi-messenger discoveries.*

*Large astronomical surveys will play an outsized role in astrophysics over the next decade, and the DAP should help distill the physics learned from these surveys. The Astro 2020 decadal survey will make available a set of priorities for the next decade, and I expect the DAP to draw on this unique resource, and to support the implementation of the Astro2020 panel's recommendations.*

*Finally, the DAP is also ideally positioned to promote the careers of young scientists, which is especially important because of the long horizon of many of the most exciting forthcoming astronomy instruments and experiments. The DAP can be equally effective in broadening the participation of women and underrepresented minorities in astrophysics. These goals can be addressed by emphasizing students, postdocs, junior faculty, as well as individuals belonging to underrepresented groups, during the selection of speakers and prize awards.*

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**Candidate Election Position:** Member-at-large

**Name:** Erin Kara

**Institution:** MIT

**Email:** ekara@mit.edu

***Brief Resume for Erin Kara:***

*Erin Kara is an Assistant Professor of Physics at the Massachusetts Institute of Technology. She attended Barnard College, where she obtained a B.A. in physics with a minor in art history. After graduating in 2011, she moved to the United Kingdom to study for a Masters and a PhD from the Institute of Astronomy at the University of Cambridge. She did her postdoctoral work at University of Maryland and NASA's Goddard Space Flight Center, before joining the faculty of MIT in July 2019.*

*In 2019, Erin received the NASA Exceptional Scientific Achievement Medal, and in 2018 became a Kavli Frontiers of Science Fellow. Her fellowships include a NASA Hubble Postdoctoral Fellowship (2015), two Gates Cambridge Scholarships for her Masters and PhD (2011, 2012) and a Barry M. Goldwater Scholarship (2010).*

*Erin is involved in the science teams of several current, future and proposed missions. She is a NASA Participating Scientist for the joint JAXA/NASA XRISM mission to fly in early 2022, and co-chairs the supermassive black hole working group. She is a Co-Investigator of the AXIS Probe Mission Concept, and is a Steering Committee Member of the STROBE-X Probe Mission Concept, both of which are currently under consideration by the Astro2020 Decadal Survey. She*

*is also a member of the Executive Committee of the High-Energy Astrophysics Division of the American Astronomical Society.*

*Erin is an observational astrophysicist, working to understand the physics behind how black holes grow and affect their environments. She has advanced a new technique called X-ray reverberation mapping, to probe the inner accretion flow and measure the effects of strongly curved spacetime close to the event horizon. She also works on variety of transient phenomena, such as tidal disruption events and Galactic black hole outbursts.*

**Candidate Statement for Erin Kara:**

*The joint GW/EM detection of a neutron star merger. The localization of fast radio bursts. Measurements and simulations of the first supermassive black holes. These are just a few of the game-changing results emerging in recent years that have captured the imagination not just of astrophysicists, but of the public at large. Now, through the ASTRO2020 Decadal process, we are reviewing our scientific priorities that we hope will inspire future astrophysicists and, rather importantly, future lawmakers. Now and in the coming years as we work to bring the priorities of the Decadal Survey to fruition, we have an opportunity and an obligation to show the public just how exciting and dynamic our field is. If elected to the DAP as a Member-at-Large, I will be an enthusiastic advocate for this cause.*

*I aim to be an advocate for young astrophysicists from a range of backgrounds and experiences. A few initiatives I will work towards: (1) promote strong diversity in our speaker pool during the April APS meeting, (2) organize early career information sessions during APS meetings to encourage networking and provide tips and tools for success, and (3) set up a strong online community, so APS meetings can be attended by all, regardless of their financial resources.*

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**Candidate Election Position:** Member-at-large

**Name:** John Ruhl

**Institution:** Case Western Reserve University,

**Email address:** ruhl@case.edu

**Brief Resume for John Ruhl:**

*John Ruhl is a Professor of Physics and Astronomy at Case Western Reserve University. He received a B.S. in Physics from the University of Michigan (1987), and a PhD in Physics from Princeton University (1993). He did postdoctoral work at the University of Chicago (1993-95) before first joining the physics faculty at the University of California Santa Barbara (1995-2002), and then moving to Case Western (2002-). He is a Fellow of the American Physical Society.*

*Dr. Ruhl's research involves building and using instruments to measure the Cosmic Microwave Background (CMB), with the goal of better understanding the fundamental physics that drives the dynamics of our universe. His work has included payloads flown under stratospheric balloons (including Boomerang, which made the first detailed images of the CMB and showed the geometry of space is consistent with flat on large scales) and at the South Pole. His current projects include the South Pole Telescope (a 10-meter diameter, millimeter-wave telescope used for high angular resolution measurements of the CMB), Spider (a balloon-borne instrument designed to probe Inflation via the signature of gravity waves in the polarization of the CMB), the next-generation ground-based CMB project, CMB-S4. He serves as the Membership Committee Chair for the CMB-S4 Science Collaboration, and on the Collaboration's Executive Team.*

*Dr. Ruhl has served in advisory roles on national and international committees dealing with Antarctic issues (the Scientific Committee on Antarctic Research, and the NSF Office of Polar Programs Advisory Committee), as well as in Astronomy and Physics (including the NASA/NSF/DOE Task Force on CMB Research, the DOE/NSF Particle Physics Scientific Advisory Group, and the NASA mission senior review).*

### **Candidate Statement for John Ruhl:**

*Astrophysics and cosmology give us a wonderful laboratory to study the fundamental constituents and laws of nature. We're lucky to work during a time when this is paying off amazingly well - our experimental and theoretical capabilities are coming together to address grand science goals. We're also lucky in that the public remains so interested in our discoveries and supportive of our work.*

*The Division of Astrophysics' main objectives are the advancement and diffusion of such knowledge and discoveries. As well as our portfolio of work is doing now, there are also challenges. Many of our flagship satellites and ground-based projects are of a scale that they necessarily are under great scrutiny, and science itself is no longer held in as great esteem as it was a mere decade or two ago. We need to continue to communicate the excitement and value of our work, both to hold high the flag of science and to ensure ongoing healthy support for our efforts. These efforts will benefit from broader exposure and inclusion of young scientists, and of underrepresented minorities. The April meeting is one place to push that agenda; broader outreach efforts and messaging to the public are another. I would be happy to serve on the DAP Executive Committee in its work to make those efforts as productive and successful as possible.*