



## Electronic Newsletter

January 9, 2018

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### APS DAP Officers 2017–2018:

Chair: Fiona Harrison

Chair-Elect:

Priyamvada Natarajan

Vice Chair: Joshua Frieman

Past Chair: Julie McEnery

Secretary/Treasurer:

Keivan Stassun

Deputy Sec./Treasurer:

Judith Racusin

Division Councilor: Cole Miller

Member-at-Large: Tracy Slatyer

Member-at-Large: Daniel Kasen

Member-at-Large: Amy Connolly

Member-at-Large:

Enrico Ramirez-Ruiz

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### Questions? Comments?

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Finalize your plans now to attend the April 2018 meeting held this year Columbus, OH. A number of plenary and invited sessions will feature presentations by DAP members. Here are the key details:

**What:** April 2018 APS Meeting

**When:** Saturday, April 14 – Tuesday, April 17, 2018

**Where:** Columbus, OH (Greater Columbus Convention Center)

**Abstract Deadline:** January 12, 2018

**Student Travel Grant Deadline:** February 2, 2018

**Registration Deadline:** March 2, 2018

The 2018 April Meeting will take place at the Greater Columbus Convention Center. 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 \$40 for undergraduates to \$450 for full members.

# Nominations for the APS DAP Executive Committee Officers

**Deadline: January 19, 2018**

Each year the Division of Astrophysics (DAP) of the APS elects new members for the open positions on the DAP Executive Committee. The members of the DAP Executive Committee serve to address the needs and interests of the Division within the APS. The Executive Committee has responsibility for the planning and organization of all Division activities and business including detailed program planning for each annual April APS meeting.

A nominating committee is being appointed by the current executive Committee and by the APS. DAP members are also invited to suggest candidates for consideration. Please relay the names of suggested candidates to the DAP Secretary-Treasurer, Keivan Stassun ([keivan.stassun@vanderbilt.edu](mailto:keivan.stassun@vanderbilt.edu)) by January 19, 2018.

The Division of Astrophysics (DAP) will be holding elections to fill vacancies for four open positions ([see the current roster](#)). Those positions are:

- **Vice-Chair.** Term of Office: one year, followed sequentially by one year of service as Chair-Elect, and then one year as Chair, and then finally one year as Past Chair (four years total, serving as a member of the Executive Committee through April, 2022). Duties: The Chair shall convene and preside at all meetings of the Executive Committee and business sessions of the Division. The Chair Elect has primary responsibility for organizing Division program sessions and activities for the annual April APS meeting.
- **Members-At-Large** (two positions). Term of Office: two years starting April 2018. Duties: The Members-At-Large will serve to enable all plans and activities of the Executive Committee, contributing to the planning and organization of Division program and serving on other DAP committees as needed.

The APS DAP Executive Committee strongly encourages Division members to participate in the election. Again, please relay your suggestions for Executive Office Nominations to [keivan.stassun@vanderbilt.edu](mailto:keivan.stassun@vanderbilt.edu) by January 19, 2018. The membership of APS is diverse and global, and the Executive Committee of DAP should reflect that diversity. Nominations of women and members of underrepresented minority groups are especially encouraged.

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## Elections for the APS DAP Officers

**Deadline: March 15, 2018**

**We urge you to cast your vote in the annual DAP elections for the DAP officers.** Please watch your email in March for the announcement and voting instructions. No lines to stand in; no polling places closing on you; simply spend 5 minutes perusing the superb qualifications of the candidates and a few more seconds recording your vote. You have a full 7 days to fill out the ballot.

## 2017 APS Fellows

Please join the DAP Executive Committee in congratulating the 2017 American Physical Society Fellows who are members of the Division of Astrophysics:

- **Diehl, H Thomas** (Fermi National Accelerator Laboratory): For outstanding leadership of Dark Energy Survey operations, laying the foundation for cutting-edge dark energy science.
- **Hooper, Dan** (Fermilab): For pursuing the identity of dark matter by combining careful analysis of observational data with theoretical ideas from both particle physics and astrophysics.
- **Huterer, Dragan** (University of Michigan): For contributions to early universe theory and for seminal efforts to develop robust empirical tests of dark energy from extragalactic survey data, including the cosmic microwave background radiation.
- **May, Morgan** (Brookhaven National Laboratory): For important contributions to techniques for constraining cosmological dark energy parameters through weak lensing, especially the use of novel lensing statistics; and for initiating and leading the astrophysics and cosmology program at Brookhaven National Laboratory.
- **Mukherjee, Reshmi** (Barnard College, Columbia University): For advancing multifrequency strategies for the identification of gamma-ray sources and contributing significant leadership in blazar studies between the GeV and TeV gamma-ray bands.
- **Musser, James Alan** (Indiana University): For sustained scientific leadership and observational discoveries in the fields of astroparticle and neutrino physics: underground, on balloons, and at beam lines.
- **Schwartz, Daniel** (Harvard-Smithsonian Center for Astrophysics): For contributions to X-ray astronomy: measurement of the spectrum and isotropy of the diffuse cosmic background; identification of discrete sources with HEAO-1; contributions to the development, calibration and operation of the Chandra X-ray Observatory; and the study of relativistic X-ray jets.
- **Suntzeff, Nicholas B** (Texas A&M University): For essential contributions and leadership in observational cosmology and astrophysics; investigations into the phenomenology of type 1-a supernovae laid the groundwork for the discovery of dark energy; and for cofounding one of the two teams that made this discovery.
- **Wechsler, Risa** (Stanford University): For innovation, insight, and attention to detail in understanding galaxy formation and evolution through combining large simulations and surveys; for leadership in large survey projects; and for mentorship of younger scientists.
- **Wyse, Rosemary** (Johns Hopkins University): For pioneering contributions to the field of galactic archaeology and near-field cosmology.

## 2018 Bethe Prize



Please join the DAP Executive Committee in congratulating [Keith Olive \(University of Minnesota\)](#), the 2018 recipient of the DAP-DNP Hans A. Bethe Prize.

The citation reads: "*for outstanding contributions across a broad spectrum of fields including nuclear physics, particle physics, theoretical and observational astrophysics, and cosmology, especially Big Bang nucleosynthesis and the properties of dark matter.*"

## 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 they 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!

### Student Travel Grants

The DAP will offer travel grants to support the attendance of graduate students (or advanced undergraduate students) at this meeting. The amount of each grant will be up to \$600 for travel-related expenses for those students who are members of the DAP and who are presenting talks or posters in DAP-sponsored sessions. DAP students presenting papers in related and/or co-sponsored sessions are eligible for grants up to \$300. If there are insufficient funds to support all applicants, preference will be given to applicants who have not received travel grant support from DAP to an APS meeting in the past.

Students must submit their applications by February 2, 2018. [Apply Here](#)

# Overview of the April Meeting

We are excited about this April Meeting and hope that you plan to attend. This newsletter includes some highlights and special features of the DAP-related parts of the meeting. Details are given in the following pages. This year DAP is sponsoring sessions at the APS April Meeting, including **15** invited sessions and **3** focus sessions, as well as the DAP Thesis Prize session.

- **Plenary sessions.** There are three plenary sessions at the April meeting. The first, the Kavli plenary session, echoes the overall "Feynman Century" theme of the meeting, with talks by Joan Feynman, Chris Monroe, and Roxanne Springer. The second plenary session on Monday includes talks by Njema Frazier, Anne Archibald, and Marcelle Soares-Santos. The final plenary session on Tuesday morning highlights the 2017 Nobel Prize and APS Medal Winners with talks by Eugene Parker, Rainer Weiss, and Barry Barish.

- **Focus sessions and contributed sessions.** The DAP, in cooperation with several other APS units (DNP, DPF, FHP, FPS, and DGRAV), is offering a large number of invited sessions covering a wide range of forefront topics and a diverse set of excellent speakers. We are celebrating the discovery of the detection of gravitational waves from BH-BH mergers and NS-NS mergers with several sessions focusing on various aspects of these events. We are also commemorating the legacy of Vera Rubin and her contributions to the study of dark matter. And finally, we are also devoting a session to women pioneers in astronomy with talks by Dava Sobel and Alan Lightman. Each invited session consists of three 36 min talks (including time for questions), so provides an opportunity to learn about compelling topics in our field in a format that allows a description of key result and the surrounding context.

- **DAP Focus sessions and contributed sessions.** Focus sessions consist of one invited talk followed by 6 contributed talks. Often these are structured with the invited talk providing an introduction and setting the stage for a topic followed by a sequence of more detailed presentations of various aspects of the results and interpretation. This year the topics include Optical Counterparts to Gravitational Wave Events, NICER: First Results.

The DAP, in partnership with NASA's Physics of the Cosmos (PCOS) program, organizes sessions to discuss the activities of PCOS and of the various science interest groups within PCOS. These sessions, open to everyone, provide an opportunity to learn about and provide input to the activities of the NASA physics of the cosmos program.

- **Focus on Young Scientists.** A cohort of three finalists for the Outstanding Doctoral Thesis Award will give invited talks at a special session, date and time to be announced when the final meeting schedule is posted soon. The finalists are: Gabriele Betancourt-Martinez ("Measurement, Theory, and Modeling of X-ray Emission from Charge Exchange Recombination"), Shirley Li ("The Hunt for Astrophysical Neutrinos"), and Josiah Schwab ("The Long Term Outcomes of Double White-Dwarf Mergers"). The winner will be announced at the DAP Reception & Awards Ceremony, tentatively scheduled for Monday evening. In addition, the DAP is providing travel awards of up to \$600 for approximately 30 graduate students to attend the meeting (see previous page of this newsletter).

# Plenary Sessions for the April 2018 Meeting

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## Plenary I: A Feynman Century (Kavli Session)

Saturday, April 14

- Joan Feynman (Jet Propulsion Laboratory) "*On Being Feynman's Curious Sister*"
  - Chris Monroe (University of Maryland) "*Quantum Computing*"
  - Roxanne Springer (Duke University)
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## Plenary II:

Monday, April 16

- Njema Frazier (National Nuclear Security Administration, DOE)
  - Anne Archibald (Netherlands Institute for Radio Astronomy) "*Tests of General Relativity Using a Pulsar in a Triple System*"
  - Marcelle Soares-Santos (Brandeis University) "*Discovery, Characterization, and Physics Implications of the Electromagnetic Signatures of GW170817*"
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## Plenary III: Nobel Prize & APS Medal Winners

Tuesday, April 17

- Eugene Parker (University of Chicago)
  - Rainer Weiss (MIT)
  - Barry Barish (Caltech)
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# Invited and Focus Sessions for the April 2018 Meeting

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## **Tracing Chemical Evolution - (w/DNP)**

*Invited Speakers:* Charli Sarkari, Jill Naiman, Anna Frebel

## **R-Process Nucleosynthesis (w/ DNP)**

*Invited Speakers:* Jennifer Barnes, Chris Fryer, Gail McLaughlin

## **Time-Domain Astrophysics**

*Invited Speakers:* Shriharsh Tendulkar, John Wisniewski, Jedidah Isler

## **Mapping the Local Universe**

*Invited Speakers:* David Hogg, Coral Wheeler, Kevin Bundy

## **Crisis in Cosmology**

*Invited Speakers:* Dan Scolnic, Stephen Feeney, Brad Benson

## **Lensing Probes in Dark Matter**

*Invited Speakers:* Mathilde Jauzac, Yashar Hezaveh, Chihway Chang

## **The Bold New Era of Big Data and Machine Learning - (w/DCOMP)**

*Invited Speakers:* Kai Staats, Kevin Schawinski, Brian Nord

## **History of Women Pioneers in Astronomy (w/ FHP)**

*Invited Speakers:* Dava Sobel, Alan Lightman, Adam Reiss

## **High-Energy Particle Astrophysics (w/ DPF)**

*Invited Speakers:* Stephanie Ann Wissel, Colas Riviere, Carla Bonifazi

## **Mapping Dark Matter and Galaxies: The Legacy of Vera Rubin**

*Invited Speakers:* Deirdre Hunter, Annika Peter

## **Fireball Emission from Binary Neutron Star Mergers (w/ DGRAV)**

*Invited Speakers:* Anthony Piro, Eric Burns, Greg Hallinen

## **Theory of EM Counterparts to Gravitational Wave Events (w/ DGRAV)**

*Invited Speakers:* Davide Lazzati, Brian Metzger, Enrico Ramirez-Ruiz

## **Compact Binary Formation Scenarios (w/ DGRAV)**

*Invited Speakers:* Michela Mapelli, Davide Gerosa, Will Farr

## **Low-Frequency Gravitational Wave Astronomy (DGRAV/DAP)**

*Invited Speakers:* Ira Thorpe, Steve Taylor, Maura McLaughlin

## **Prize Talks: Big Bang nucleosynthesis, dark matter, and astronomical random number generators (w/ DNP)**

*Invited Speakers:* Keith Olive (Bethe Prize), Calvin Leung (Apker Award)

## **Optical Counterparts to Gravitational Wave Events**

*Invited Speakers:* Dan Kasen

## **NICER: First Results**

*Invited Speakers:* Zaven Arzoumanian