APS Announces 2019 Prize and Award Recipients

APS extends congratulations to all recipients of these Society prizes and awards. Recipients will be honored at award ceremonies at various APS meetings throughout the year. The March and April meeting award ceremonies are open to all APS members and their guests. At the March Meeting, the APS Prizes and Awards Ceremony will be held Monday, March 4, 2019, 5:45 p.m. at the Boston Convention Center, Boston, Massachusetts. At the April Meeting, the APS Prizes and Awards Ceremony will be held Sunday, April 14, 2019, 5:30 p.m. at the Sheraton Denver Downtown Hotel, Denver, Colorado. In addition to the award ceremonies, many prize and award recipients will give invited talks during the meeting. Some recipients are recognized at APS unit meetings. For the schedule of APS meetings, please visit aps.org/meetings/calendar.cfm.

Prizes

2019 APS MEDAL FOR EXCEPTIONAL ACHIEVEMENT IN RESEARCH

Bertrand I. Halperin
Harvard University
For his seminal contributions to theoretical condensed matter physics, especially his pioneering work on the role of topology in both classical and quantum systems.

2019 HANS A. BETHE PRIZE

Ken’ichi Nomoto
The University of Tokyo, Kavli Institute of Physics and Mathematics
For lasting contributions to our understanding of the nuclear astrophysics of the universe, including stellar evolution, the synthesis of new elements, the theory of core-collapse and thermonuclear supernovae, and gamma-ray bursts.

2019 TOM W. BONNER PRIZE IN NUCLEAR PHYSICS

Barbara V. Jacak
Lawrence Berkeley National Laboratory, University of California, Berkeley
For her leadership in the discovery and characterization of the quark-gluon plasma, in particular for her contributions to the PHENIX experiment and its explorations of jets as probes.

2019 HERBERT P. BROIDA PRIZE

Marsha I. Lester
University of Pennsylvania
For the development of innovative methods for generating and characterizing reactive intermediates using sophisticated laser techniques that elucidate important reaction pathways in atmospheric and combustion chemistry.

2019 OLIVER E. BUCKLEY CONDENSED MATTER PHYSICS PRIZE

Elihu Abrahams
University of California, Los Angeles
For pioneering research in the physics of disordered materials and lattice condensation.

2019 MAX DELBRUCK PRIZE IN BIOLOGICAL PHYSICS

Ken A. Dill
Stony Brook University
For independent contributions to a new view of protein folding, from the introduction and exploration of simple models, to detailed confrontations between theory and experiment.

2019 EINSTEIN PRIZE

Abhay Ashtekar
Pennsylvania State University
For fundamental contributions to general relativity, including the theory of black holes, canonical quantum gravity, and quantum cosmology.

2019 PRIZE FOR A FACULTY MEMBER FOR RESEARCH IN AN UNDERGRADUATE INSTITUTION

Robert C. Forrey
Pennsylvania State University, Berks
For outstanding contributions to general relativity, including the theory of black holes, canonical quantum gravity, and quantum cosmology.

2019 HERMAN FESHBACH PRIZE IN THEORETICAL NUCLEAR PHYSICS

Barry R. Holstein
University of Massachusetts, Amherst
For seminal theoretical studies of fundamental symmetries in nuclei, including radioactive nuclear decays, parity-violating nucleon-nucleon interactions, symmetries in nuclei, including radioactive nuclear decays, parity-violating nucleon-nucleon interactions, and chiral dynamics of mesons and baryons.

2019 DANNIE HEINEMAN PRIZE FOR ATOMIC OR SURFACE PHYSICS

Randall Feenstra
Carnegie Mellon University
For pioneering developments of the techniques and concepts of spectroscopic scanning tunneling microscopy.

2019 JAMES C. MCGRODDY PRIZE FOR NEW MATERIALS

Elihu Abrahams
University of California, Los Angeles
For the theoretical prediction, design and realization of non-magnetic insulators.

2019 JAMES CLERK MAXWELL PRIZE FOR PLASMA PHYSICS

Keith Moffatt
University of Cambridge
For profound, elegant, and lasting contributions to fluid mechanics, including turbulence, Stokes flows, topological fluid mechanics, interfacial flows, and self-similarity.

2018 FLUID DYNAMICS PRIZE

Keith H. Burrell
General Atomics
For pioneering research, including key experimental advances and diagnostic development, that established the links between plasma flow and turbulent transport, leading to improved confinement regimes for magnetic plasmas through turbulent transport reduction by sheared flow.

2019 LARS ONSAGER PRIZE

Christopher Jarzynski
University of Maryland, College Park
For seminal contributions to non-equilibrium thermodynamics and statistical mechanics that have had remarkable impact on experimental research in single-molecule and biological physics, engendering whole new fields of theoretical, numerical, and laboratory research, as well as for groundbreaking work on the thermodynamics of small systems.

2019 LEO P. KADANOFF PRIZE

M. Cristina Marchetti
University of California, Santa Barbara
For original contributions to equilibrium and non-equilibrium statistical mechanics, including profound work on equilibrium and driven vortex systems, and fundamental research and leadership in the growing field of active matter.

2019 IRVING LANGMUIR PRIZE IN CHEMICAL PHYSICS

Devarajan Thirumalai
University of Texas, Austin
For the development of analytical and computational approaches to soft-matter systems and their application to the transitional behavior of supercooled liquids and glassy systems, spanning dynamics of protein and RNA biopolymers, and functioning of molecular motors.

2019 JULIUS EDGAR LILIENTHAL PRIZE

Katherine Freese
University of Michigan, Stockholm University
For ground-breaking research at the interface of cosmology and particle physics, and her tireless efforts to communicate the excitement of physics to the general public.

2019 MAX DELBRUCK PRIZE IN BIOLOGICAL PHYSICS

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2019 ABRAHAM PAIS PRIZE FOR HISTORY OF PHYSICS

Helge Kragh
Niels Bohr Institute, University of Copenhagen

For influential contributions to the history of physics, especially analyses of cosmological theories and debates, the history of the quantum physics of elementary particles and the solid state, and biographical studies of Paul Dirac and Niels Bohr, and his early quantum atom.

2019 W.K.H. PANOFSKY PRIZE IN EXPERIMENTAL PARTICLE PHYSICS

Sheldon Leslie Stone
Syracuse University

For transformative contributions to flavor physics and hadron spectroscopy, in particular through intellectual leadership on detector construction and analysis on the CLEO and Large Hadron Collider beauty experiments, and for the long-standing, deeply influential advocacy for flavor physics at hadron colliders.

2019 EARLE K. PLYLER PRIZE FOR MOLECULAR SPECTROSCOPY AND DYNAMICS

Abraham Nitzan
Tel Aviv University and University of Pennsylvania

For deep physical insights in the fields of surface-enhanced Raman spectroscopy and molecular electronics.

2019 POLYMER PHYSICS PRIZE

Ronald G. Larson
University of Michigan

For wide-ranging, multi-disciplinary contributions to understanding the structure, dynamics, and rheology of polymeric materials in melt, solution, glassy, mesomorphic, and multiphase states, including viscoelastic instabilities, constitutive equations, alignment transitions, and phase behavior.

2019 I. I. RABI PRIZE IN ATOMIC, MOLECULAR, AND OPTICAL PHYSICS

Kang-Kuen Ni
Harvard University

For seminal work on ultralow molecules, including original contributions to the understanding of chemical reactions in the quantum regime, deterministic creation of individual molecules with optical tweezers, and development of novel, high-precision techniques to interrogate and control the complete set of internal molecular resources.

2019 ANEESUR RAHMAN PRIZE FOR COMPUTATIONAL PHYSICS

Sharon C. Glotzer
University of Michigan

For innovative molecular dynamics simulations of the self-assembly of variously shaped particles which opened up new directions in soft matter and materials science research.

2019 NORMAN F. RAMSEY PRIZE IN ATOMIC, MOLECULAR, AND OPTICAL PHYSICS, & IN PRECISION TESTS OF FUNDAMENTAL LAWS & SYMMETRIES

Jun Ye
JILA, NIST/University of Colorado, Boulder

For groundbreaking contributions to precision measurements and the quantum control of atomic and molecular systems, including atomic clocks.

2019 J.J. SAKURAI PRIZE FOR THEORETICAL PARTICLE PHYSICS

Raman Sundrum
University of Maryland, College Park

For creative contributions to physics beyond the Standard Model, in particular the discovery that warped extra dimensions of space can solve the hierarchy puzzle, which has had a tremendous impact on searches at the Large Hadron Collider.

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2019 GEORGE E. DUVALL SHOCK COMPRESSION SCIENCE AWARD

George T. Gray III
Los Alamos National Laboratory
For pioneering contributions in dynamic constitutive and damage response of materials, for leadership in developing programs and tools to advance our understanding of materials and structures in response to high-strain-rate and shock deformation, and for leadership in the technical community.

2018 LANDAU-SPITZER AWARD

Yeugen Kazakov
Laboratory for Plasma Physics of the Royal Military Academy (LPP-ERMKMS), Brussels, Belgium

Jozef Ongena
Laboratory for Plasma Physics of the Royal Military Academy (LPP-ERMKMS), Brussels, Belgium

2019 EXCELLENCE IN PHYSICS EDUCATION AWARD

Learning Assistant (LA) model and the associated Learning Assistant Alliance (LAA)

Steven Iona
University of Colorado, Boulder
University of Denver

Laurie S. Langdon
University of Colorado, Boulder

Richard McCray
University of Colorado, Boulder

Valerie K. Otero
University of Colorado, Boulder

Steven Pollock
University of Colorado, Boulder

For the development of the Learning Assistant (LA) model and the associated LA Alliance, which has enhanced physics teacher education and recruitment, supported undergraduate course transformation, and physics instructor professional development.

2019 JOSEPH F. KEITHLEY AWARD FOR ADVANCES IN MEASUREMENT SCIENCE

Zahid Hussain
Lawrence Berkeley National Laboratory
For the development of soft x-ray instrumentation such as monochromators and spectrometers for synchrotron radiation beamlines, leading to significant measurement improvements of angle-resolved photoemission spectroscopy and resonant inelastic soft-x-ray scattering.

2018 ROBERT L. BENNETT AWARD IN QUANTUM COMPUTING

Tanya Zelevinsky
Columbia University
For pioneering research on producing ultracold molecules confined in optical lattices and using them for precision spectroscopy, molecular clock techniques, and tests of fundamental physics.

2019 ROLF LANDAUER AND CHARLES H. WOLFF-REICHERT AWARD FOR EXCELLENCE IN ADVANCED LABORATORY INSTRUCTION

Jonathan Home
ETH Zürich
For the development and demonstration of trapped-ion quantum computing protocols, including Bell state stabilization by feedback control in metal ion chains, and the encoding of logical quantum states in the ion motion.

2018 THOMAS H. STIX AWARD FOR OUTSTANDING EARLY CAREER CONTRIBUTIONS TO PLASMA PHYSICS RESEARCH

Frederico Fiuela
SLAC National Accelerator Laboratory
For seminal contributions that advanced the field of laboratory astrophysics through numerical simulations and leadership of experiments on particle acceleration, colliders, shock, and magnetic reconnection.

2018 GEORGE M. LANDER AWARD

Nhan Tran
Fermi National Accelerator Laboratory
For wide-ranging contributions to the Compact Muon Solenoid experiment, including the development of a novel pileup subtraction method at the Large Hadron Collider, and the use of jet substructure for the analysis of high-energy collisions.

2018 LEO SZILARD LECTURESHIP AWARD

Zia Miin
Princeton University
For promoting global peace and nuclear disarmament, particularly in South Asia, through academic research, public speaking, technical and popular writing, and organizing efforts to ban nuclear weapons.

2019 ROBERT S. ROSENBLOOM AWARD

Federico Rosei
For sustained leadership and service to the international physics community, in particular for developing global collaborations through projects and networks in China, Mexico, and several African countries, and for exceptional mentoring efforts.

2019 FRANCIS M. PIPPING AWARD

Tanya Zelevinsky
Columbia University
For pioneering research on producing ultracold molecules confined in optical lattices and using them for precision spectroscopy, molecular clock techniques, and tests of fundamental physics.

2019 HENRY PRIMAKOFF AWARD FOR EARLY-CAREER PARTICLE PHYSICS

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Fellowships

2018 M. HILDRED BLEWETT FELLOWSHIP

Asma Al-Qasimi
University of Rochester

Wafia Bensalem
Carleton University

Steph Kubala
University of Wisconsin at Madison

Tamar Mentzel
Harvard University

Satomi Okada
University of Alabama

Susmita Pal
University of Texas MD Anderson Cancer Center, Houston

2018 STANFORD R. OVSHINSKY SUSTAINABLE ENERGY FELLOWSHIP

Vivian E. Ferry
University of Minnesota
For proposed research developing improved photovoltaic systems using spectrally-selective photonic structures.

Dissertations

2018 ANDREAS ACRIVOS DISSERTATION AWARD IN FLUID DYNAMICS

Shabnam Raayai Ardakani
Massachusetts Institute of Technology
For experimental and theoretical contributions to understanding the mechanisms by which microtextured riblet surfaces can reduce (or increase) the viscous frictional drag experienced by flows, and Taylor Couette flows.

2018 CARL E. ANDERSON DIVISION OF LASER SCIENCE DISSERTATION AWARD

Sara L. Campbell
University of Colorado, Boulder
For creating the world’s first quantum gas optical atomic clock and demonstrating a record long coherence time for light-matter interactions at 10^11 and clock measurement precision of 1 parts in 10^15.

2018 OUTSTANDING DOCTORAL THESIS RESEARCH IN BEAM PHYSICS AWARD

Sergey Antipov
CERN
For experimental studies and analysis of the electron cloud build-up and corresponding instabilities in accelerators with combined function magnets and for the development of an effective mitigation technique applied in the Fermilab’s Recycler ring.

2018 AWARD FOR OUTSTANDING DOCTORAL THESIS RESEARCH IN BIOLOGICAL PHYSICS

Jasmine A. Nirody
University of California, Berkeley
Outstanding thesis work on investigating the molecular mechanism underlying the dynamics of bacterial flagellar motor by using both computational modeling methods and experiments.

2018 DEBORAH JIN AWARD FOR OUTSTANDING DOCTORAL THESIS RESEARCH IN ATOMIC, MOLECULAR, OR OPTICAL PHYSICS

Rivka Bekenstein
Harvard University
For exemplary achievement in computational physics, by leveraging new architectures to develop methods for astrophysical simulation on the world’s fastest supercomputer.

2018 RICHARD L. GREENE DISSERTATION AWARD IN EXPERIMENTAL CONDENSED MATTER OR MATERIALS PHYSICS

Edbert Jarvis Sie
Massachusetts Institute of Technology
For thesis topic, “Coherent light-matter interactions in monolayer transition metal dichalcogenides.”

Uri Vool
Harvard University
For thesis topic, “Engineering synthetic quantum operations.”

2018 BERT JOHANSEN AWARD FOR OUTSTANDING DOCTORAL DISSERTATION IN LASER SCIENCE

Sara L. Campbell
University of Colorado, Boulder
For developing powerful new techniques to search for dark matter signals in astrophysical datasets, for characterizing the excess of GeV gamma-rays from the inner Milky Way, and for cutting-edge predictions of annihilation signals from complex dark sectors and heavy weakly-interacting dark particles.

2018 DEBORAH JIN AWARD FOR OUTSTANDING DOCTORAL THESIS WORK IN COMPUTATIONAL PHYSICS

Grayson Rich
University of Chicago
For his outstanding contributions to the first observation of coherent elastic neutrino nucleus scattering as a member of the COHERENT neutrino experiment at the Oak Ridge National Laboratory.

2018 CECELIA PAYNE-GAPOSCHKIN DOCTORAL DISSERTATION AWARD IN ASTROPHYSICS

Gabriele Betancourt-Martinez
University of Maryland, College Park
Measuring and Interpreting the x-ray spectra of dark sectors and heavy weakly-interacting dark particles.

2018 MARSHALL N. ROSENBLUTH OUTSTANDING DOCTORAL THESIS AWARD

Seth Davidovits
Princeton Plasma Physics Laboratory
For major contributions to understanding, simulating, and diagnosing turbulence in compressing plasmas; for the identification of the sudden dissipation effect and suggestions for exploiting it; and for the derivation of a practical lower bound on turbulent dissipation in compressing plasmas.

Nominate members for next years’ prizes, awards, and fellows: aps.org/programs/honors/index.cfm