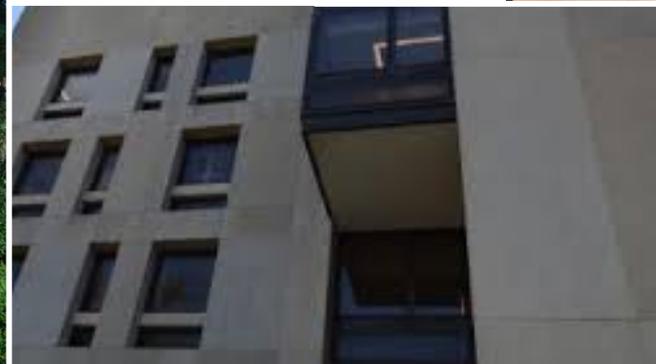


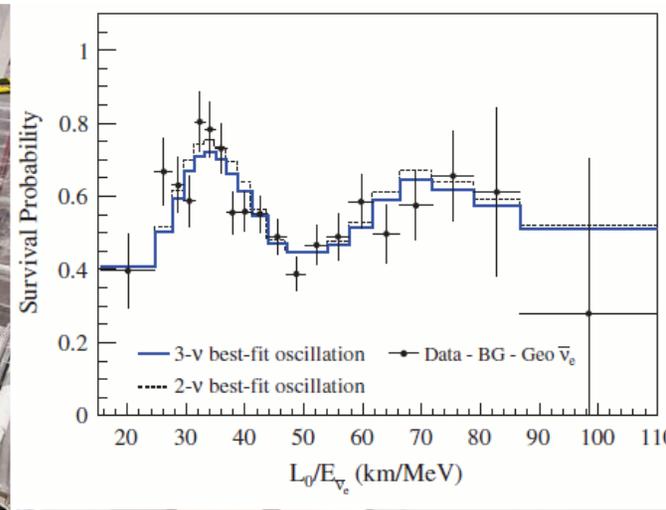
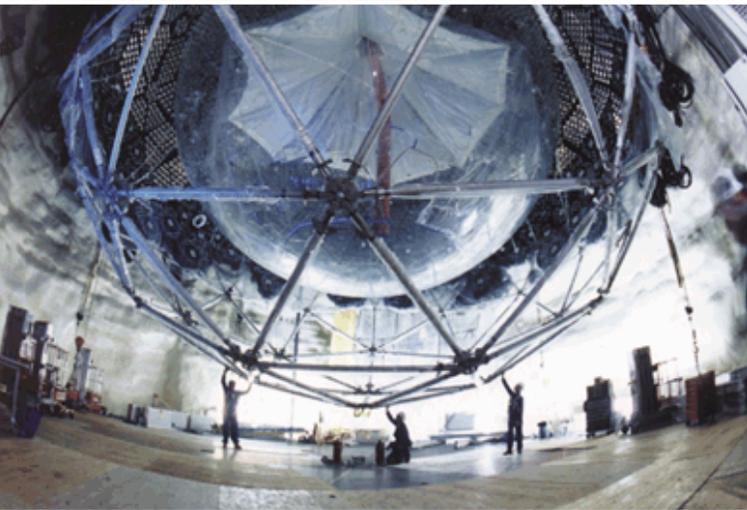
Department Welcome 2019

First Physics Club



Yale *Physics*

Welcome from your new Chair of Physics!



karsten.heeger@yale.edu

Outline



State of the Department/
Physics by the Numbers

Institute and Facilities

New faculty, postdocs and students

2018/2019 Year in Review

2019/2020 Look ahead

Yale Physics by the Numbers



People

faculty (primary)	35
faculty (secondary)	16
faculty (total)	69

research scientist	25
postdocs	31
grad students (physics)	133

grad student alumni (1976-present)	302
---------------------------------------	-----

Events in 2018/2019

events (total)	191
seminars	139

Yale Physics by the Numbers

BA/BS Degrees Awarded By Major

	2008/09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Physics	24	12	12	13	25	28	26	23	29	20
Physics & Geoscience	0	0	0	0	0	0	1	0	1	0
Physics & Philosophy	1	1	1	1	1	1	1	0	0	1
Astronomy & Physics	4	5	5	1	3	2	1	1	1	0

PhD Enrollment

2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
97	97	102	106	113	123	118	127	117	121

<https://oir.yale.edu>

Physics Graduate Students by Department of Study



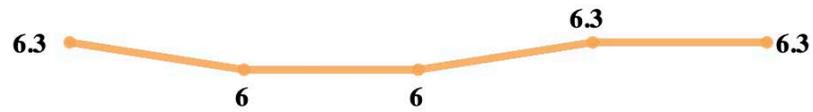
	Count	% of
1 st year		20
2 nd year		14
AP		19
Astronomy		2
Cell bio		1
G&G		1
MCDB		2
Physics		39
Psychiatry		2
SEAS		2
	133	100

>3rd year not in Physics: 41%

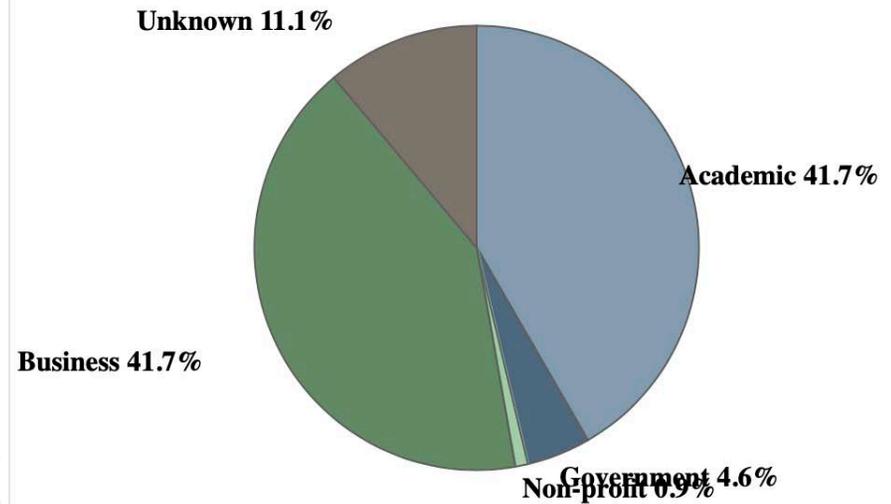
Physics students have diverse interests!

Yale Physics Graduate Program

Median Calendar Years until Degree

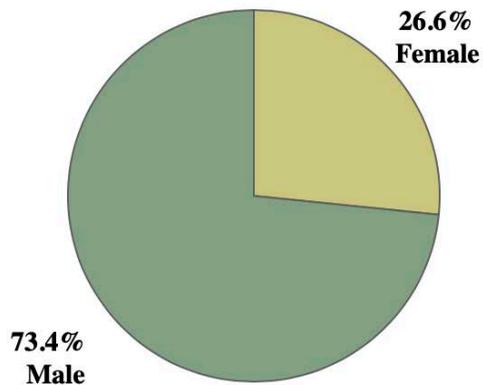


Employment By Type and Sector

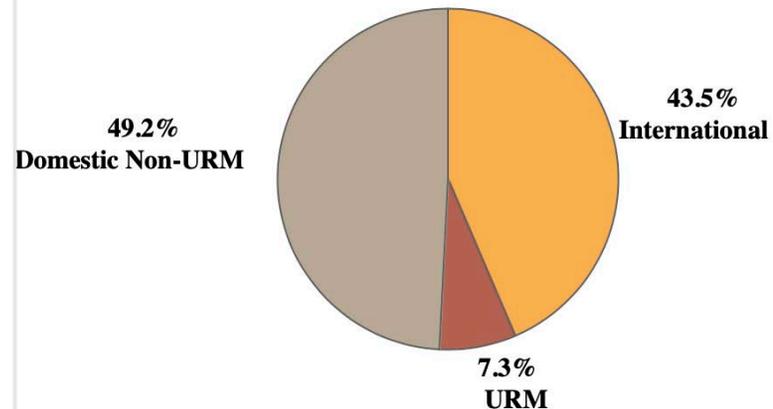


2006	2007	2008	2009	2010
6.3	6	6	6.3	6.3

Enrolled Students in 2018-19 as of October 2018
by Gender: 124 Students



By Citizenship and Under Represented Minority Status:
124 Students



Recent Yale Physics Alumni (*selected*)



Postdoc
ICTP, Trieste Italy

James
Ingoldby
Thomas
Appelquist



Prashanta
Kharel
Peter Rakich

**Device Lead and
Founding Team Member**
Hyperlight Corporation



Law School Student
Georgetown University

Susan Pratt
Simon
Mochrie



Zack Lasner

Postdoc David
Harvard DeMille

KICP and Grainger Fellow
University of Chicago



Savannah

Thais
Sarah
Demers

Postdoc
INFN, Italy



Danielle
Norcini
Karsten
Heeger



Salvatore
Aiola
John Harris

Follow our alumni at
<https://physics.yale.edu/people/alumni>

Yale *Physics*

Yale Physics Ranking & Priorities



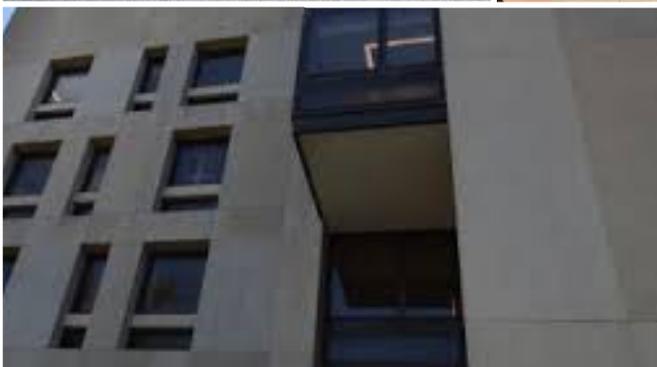
Physics

Program and Specialty rankings

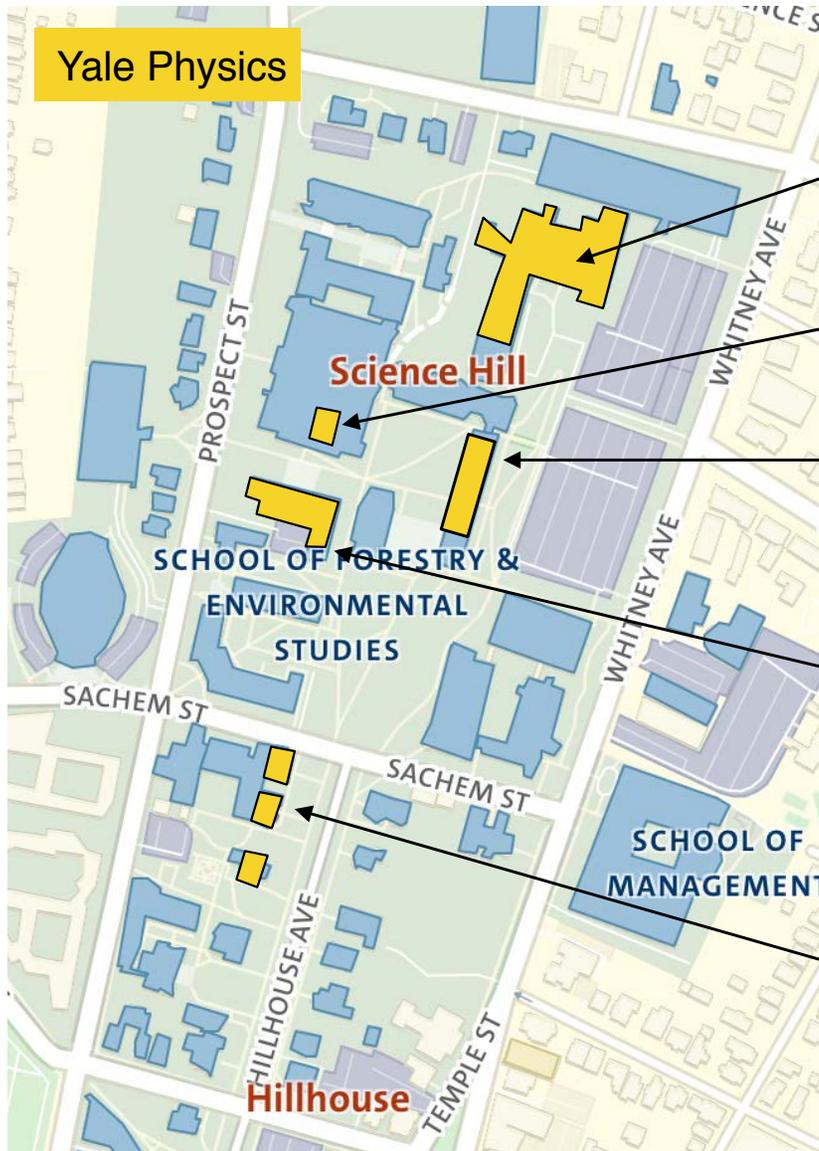
- 🏆 #12 in **Physics**
- 🏆 #12 in **Atomic / Molecular / Optical** (tie)
- 🏆 #10 in **Elementary Particles / Field / String Theory** (tie)
- 🏆 #5 in **Nuclear** (tie)
- 🏆 #10 in **Quantum** (tie)

Diversity, inclusion, mentoring, and excellence are amongst our top priorities.

Yale Physics Buildings



Yale Physics Department (on central campus)



Wright Laboratory (WL)

- experimental laboratories and facilities
- nuclear, particle, astrophysics

Teaching Laboratories (SCL)

Yale Science Building (YSB)

- biological physics

Sloan Physics Building (SPL)

- lectures
- central office
- AMO, bio, condensed matter
- theory

Hill House (HH)

- particle physics
- astrophysics
- astronomy

Physics is central to Science Hill

Yale *Physics*

Yale Physics Research in Affiliated Centers

YQI Yale Quantum Institute

 **Wright**
Laboratory

Quantitative Biology Institute [QBio]

PEB  Yale's Integrated Graduate Program In
PHYSICAL and **ENGINEERING BIOLOGY**



Systems Biology Institute



Energy Science Institute

Yale *Physics*



The Vision

YALE QUANTUM INSTITUTE

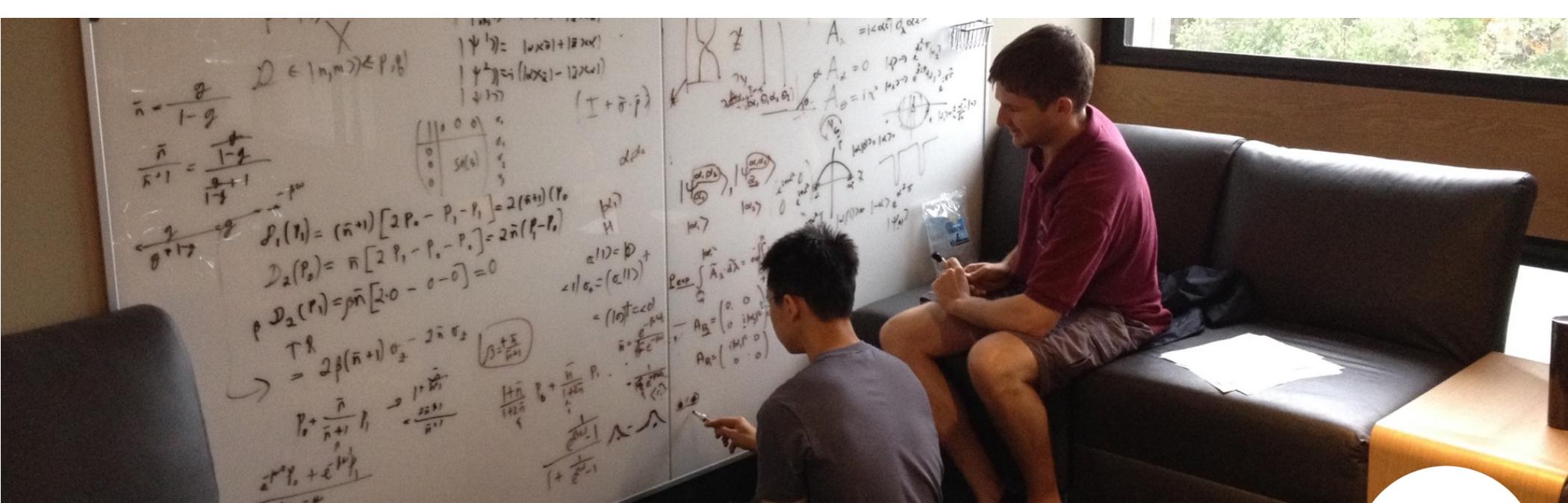
The Quantum Institute facilitates the research and teaching of quantum science on the Yale campus. YQI performs outreach in the form of seminars, workshops, and by hosting leading scientists from around the world.

- **Capitalize on Yale's lead** in the area of quantum information.
- **Build a reputation for excellence** at Yale in a 21st century growth area in basic and applied physical science.
- **Ensure that Yale becomes the intellectual epicenter** in the future of quantum information science and technology.
- **Leverage the advantage in *this* area** to help Yale excel in *other* related and emerging areas of science. (infrastructure!)
- **Attract and train the next generation's leaders** to carry out the quantum information revolution.

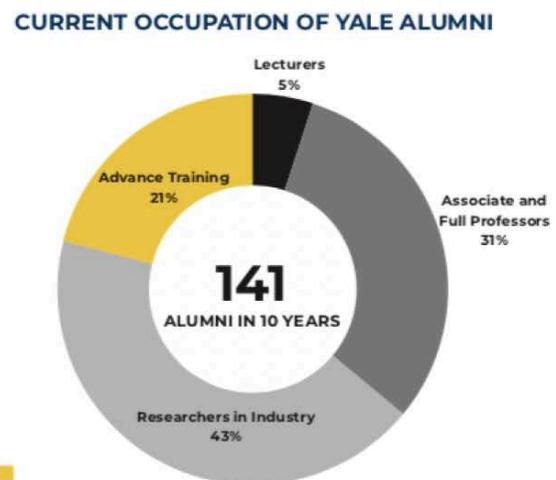
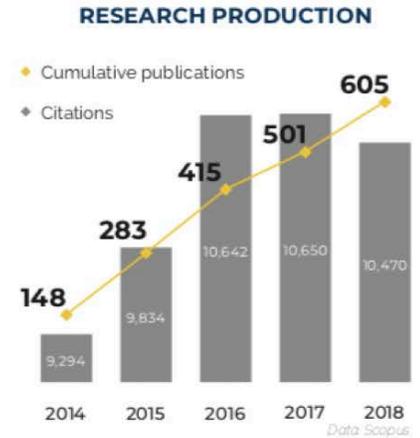
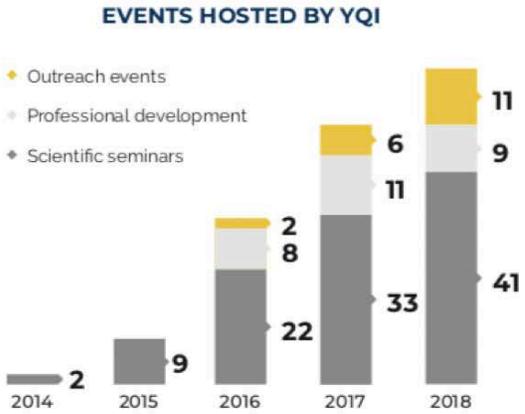


Meng Cheng
Steve Girvin
Jack Harris
Sean Barrett
David deMille
Leonid Glazman
Reina Maruyama
Nir Navon
David Moore
Nicholas Read
Ramamurti Shankar
Karsten Heeger

Yale *Physics*



Five Years in Numbers

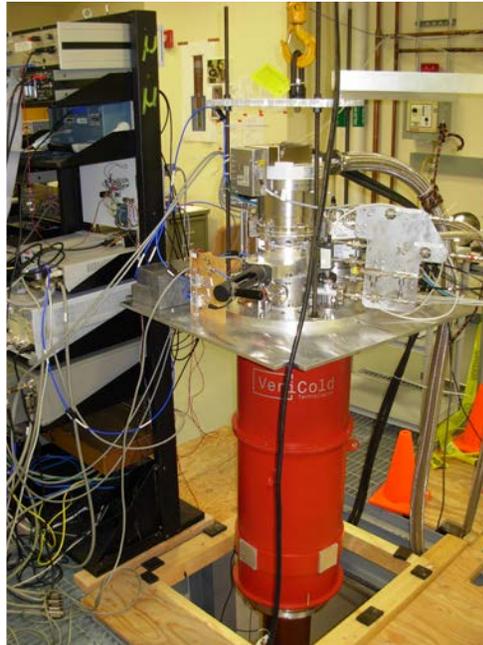
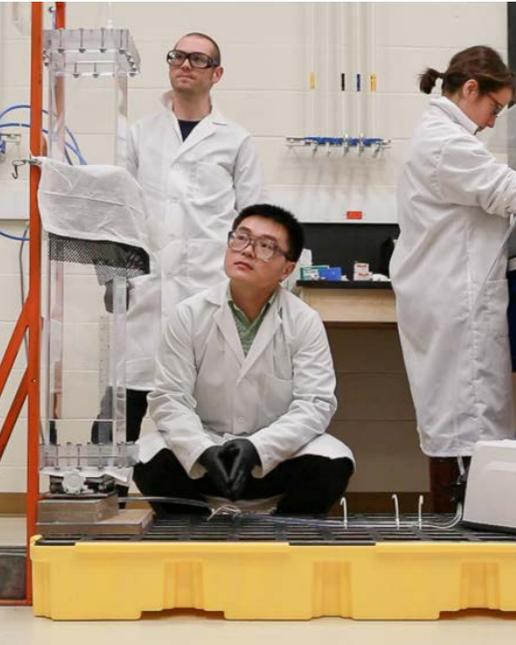


Science	Nature	Nature Group	PRL	PNAS
9	8	28	57	3



Mission

Advance understanding of the physical world, from the smallest particles to the evolution of the Universe, by engaging in fundamental research, developing novel applications, training future leaders in research and development, educating scholars, and enabling discovery.



160 People in the Wright Lab Community

17	Faculty	29	Undergraduates
7	Adjunct Faculty	3	Postgraduates
17	Research Scientists	6	Administrative staff
23	Postdocs	12	Technical support staff
43	Graduate Students	3	Computing support staff
371	Visitors	170	Graduate Alumni since 1965

10 Awards and Honors

255 Publications 15,934 Citations

4 Yale University Machine Shops

20	Cranes	3	Permanent Clean Rooms
20	Mills	3	3D-Printers
1	Water Jet Cutter	1	Laser Jet Cutter

80 Events

54	Seminars	7	Workshops/Collaboration Meetings
2	Conferences	1	Summer School
6	Outreach events	1	Undergraduate Research Symposium

Yale Center for Astronomy and Astrophysics

“Umbrella” for joint astro activities of Physics and Astronomy departments

Created in 2001 (Meg Urry, founding Director)

Keck, Palomar 200”, Simons Obs Keck since 2007

Institutional membership in SDSS III, IV, V surveys

Joint colloquia, journal clubs, seminars

YCAA Prize Postdoctoral Fellowship (~170-300 app/yr)

Recent Science News

- Growth of black holes quantified over 12 Gyr
- Finding a cosmic fog within shattered intergalactic ‘pancakes’
- Cold quasars could rewrite our understanding of a galaxy’s lifecycle
- New studies confirm existence of galaxies with almost no dark matter
- A new theory for ‘Oumuamua: It’s a comet that rocks
- When Black Holes Burp, Stars Sense It



<https://ycaa.yale.edu>

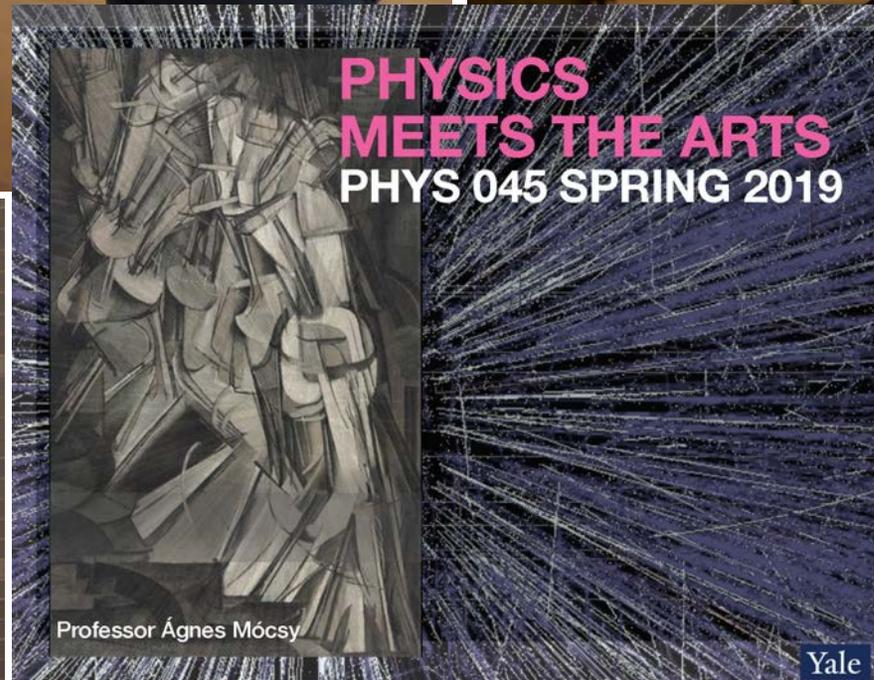
Yale *Physics*

Physics Meets the Arts

WRIGHT LABORATORY ARTIST-IN-RESIDENCE
EMILY COATES



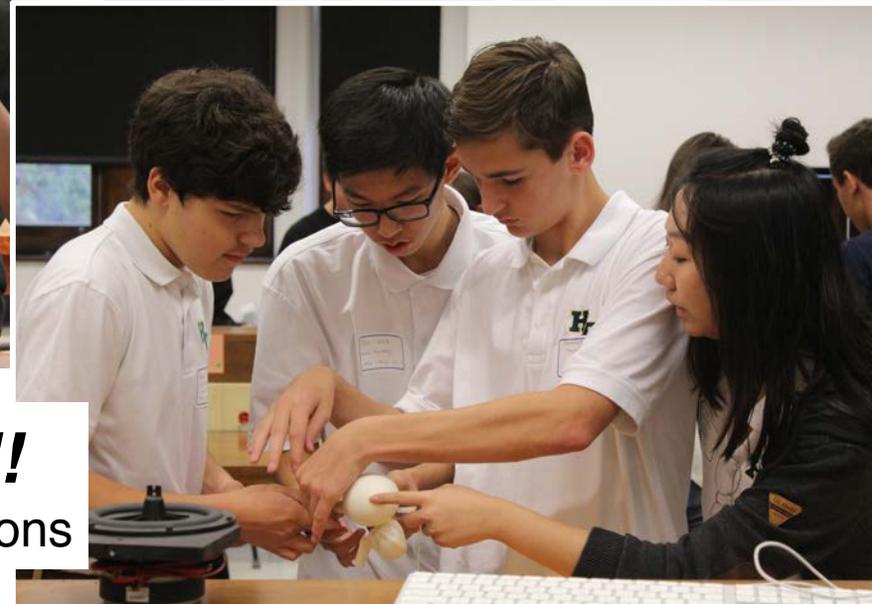
Agnes Mocsy
2018-2019 Presidential Visiting Fellow



Yale *Physics*

Yale Physics Olympics

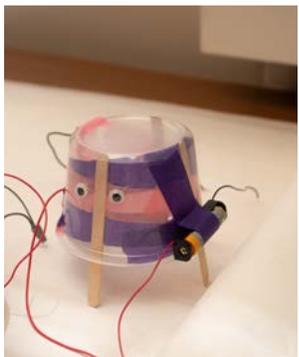
October 13, 2018



Get involved!
contact: Stephen Irons

Girls Science Investigations

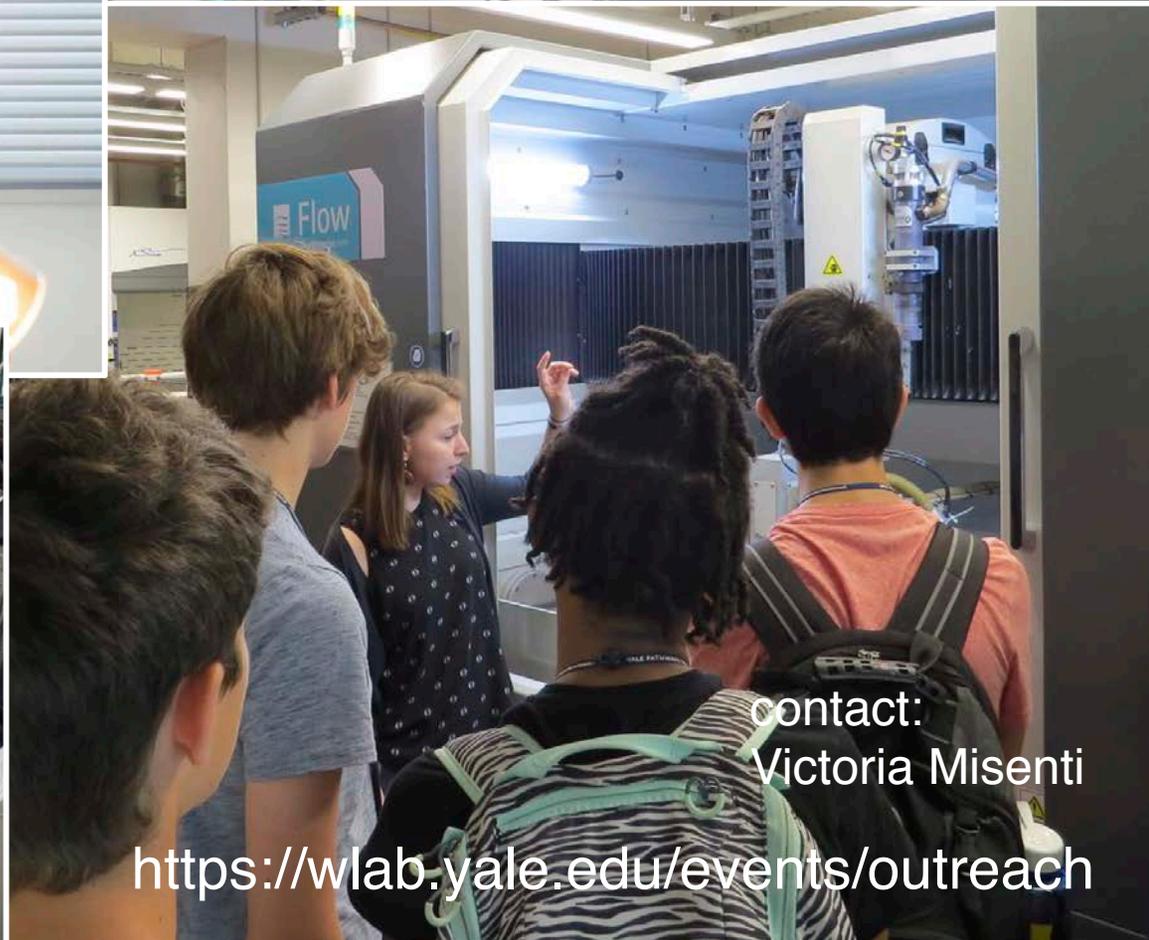
April 6, 2019



contact:
Rona Ramos



Pathways to Science

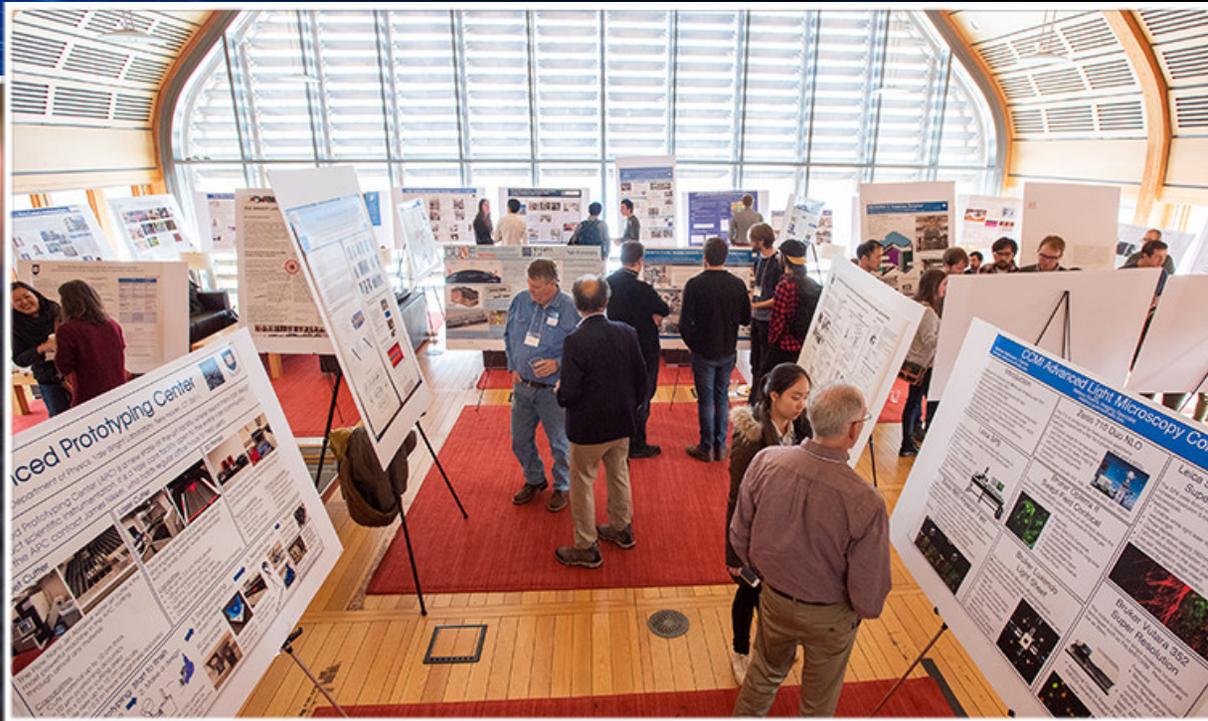


contact:
Victoria Misenti

<https://wlab.yale.edu/events/outreach>

2018 Yale Day of Instrumentation

instrumentation.yale.edu



Yale *Physics*

Symposium in Honor of Prof. Iachello



SYMMETRIES AND ORDER: ALGEBRAIC METHODS IN MANY BODY SYSTEMS

In honor of Professor Francesco Iachello on the occasion of his retirement

October 5-6, 2018 at Yale University

Yale *Physics*

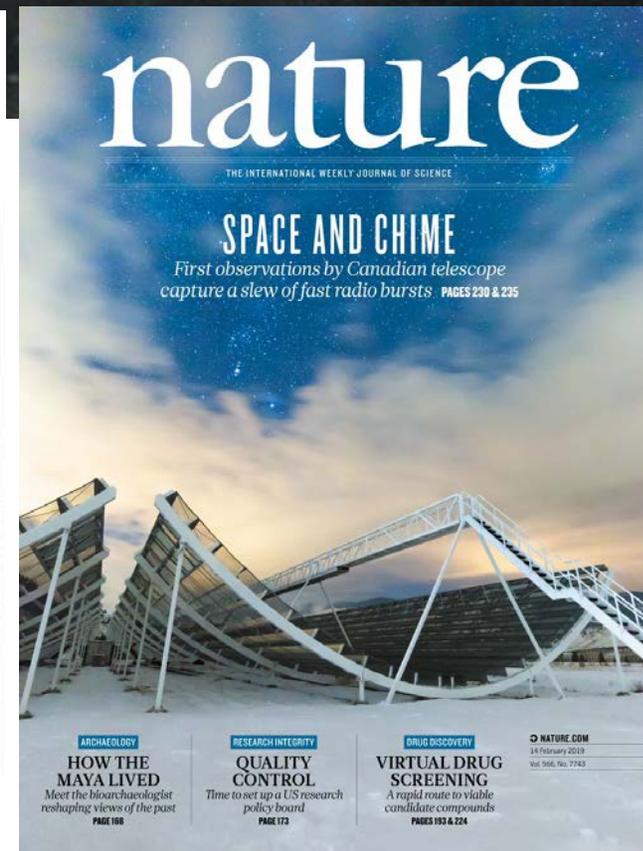
Yale Physics in the News - *selected highlights*



Broadcasting from Deep Space, a Mysterious Series of Radio Signals



The Canadian Hydrogen Intensity Mapping Experiment, or Chime, a radio telescope array in British Columbia. Soon after it was turned on last summer, it picked up a set of odd radio bursts from deep space. Will Ivy/Alamy Stock Photo



Yale Physics

Yale Physics in the News - *selected highlights*

ScienceNews
INDEPENDENT JOURNALISM SINCE 1921

NEWS

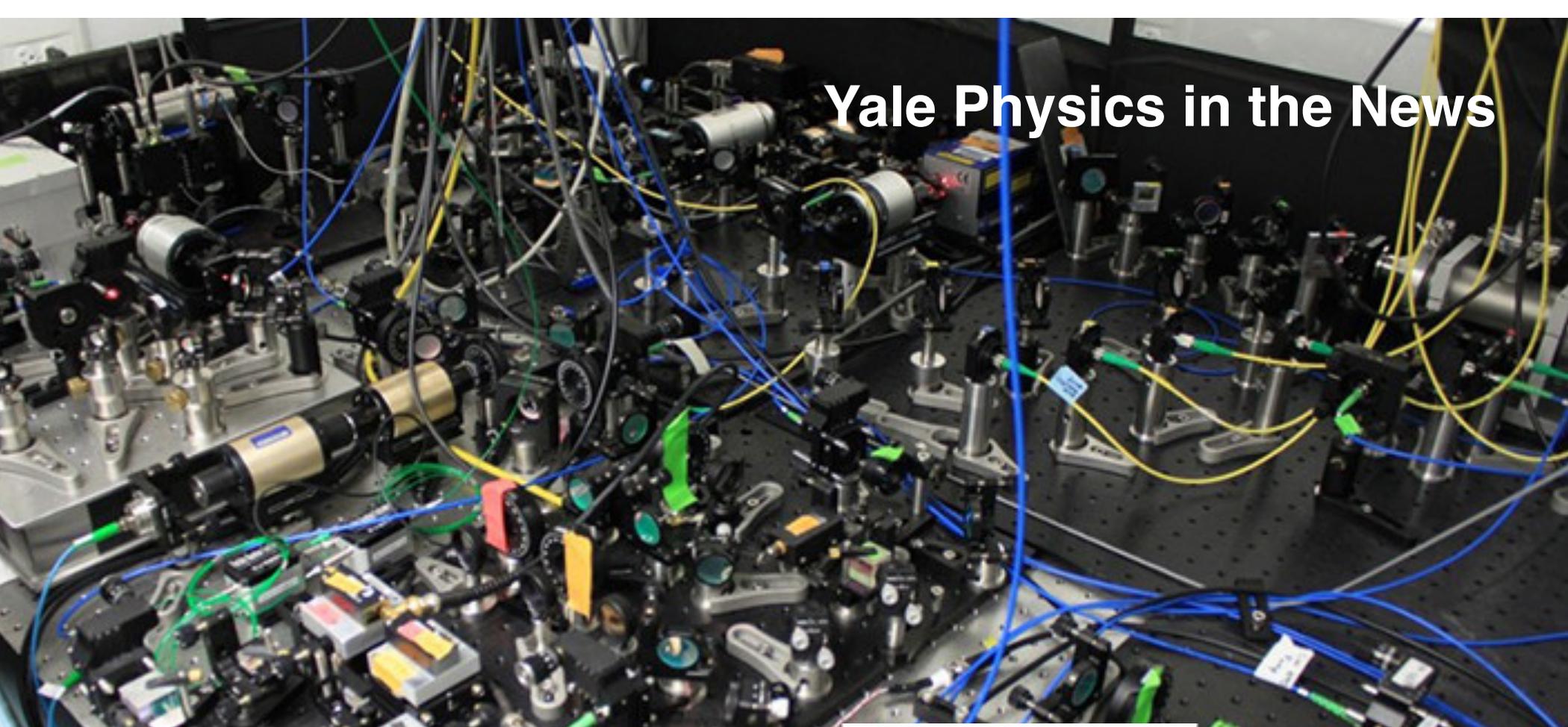
PARTICLE PHYSICS

A controversial sighting of dark matter is looking even shakier

The COSINE-100 experiment finds no evidence of the evasive subatomic particles

Yale *Physics*

Yale Physics in the News

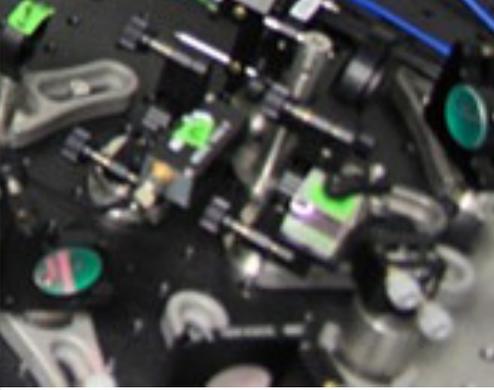
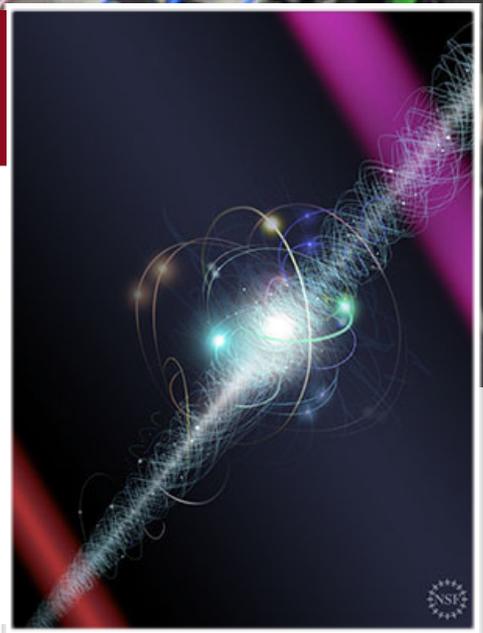


Article | Published: 17 October 2018

Improved limit on the electric dipole moment of the electron

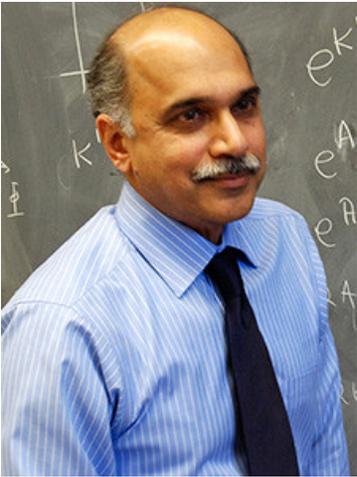
ACME Collaboration

Nature **562**, 355–360 (2018) | [Download Citation](#) ↓



Yale *Physics*

2018-2019 Honors and Awards - Faculty



Ramamurti Shankar
named the **Gibbs
Professor of Physics**

Bonnie Fleming has been awarded the
**2018 Division of Particles and
Fields Mentoring Award** from the
American Physical Society



Meng Cheng and Nir Navon have been
awarded **2019 Sloan Research
Fellowships**

Ben Machta named **Simons Investigator**



2018-2019 Honors and Awards - Faculty

Helen Caines (Associate Professor of Physics) elected a **Fellow of the American Physical Society**



Meng Cheng has been awarded an **NSF Career Award**

Peter Schiffer named the **Beinecke Professor of Applied Physics**



2018-2019 Honors and Awards - Students/Postdocs



Benjamin Brubaker, '17 awarded the **American Physical Society's Tanaka Dissertation Award** in Experimental Particle Physics

Thomas Langford awarded **2019 Sambamurti Memorial Lectureship** at Brookhaven National Laboratory



Brooke Russell awarded **2019 Gertrude Scharff-Goldhaber Prize**

2018-2019 Honors and Awards - Students/Postdocs



Grant Schumacher has been awarded an **NSF Graduate Research Fellowship for 2019**

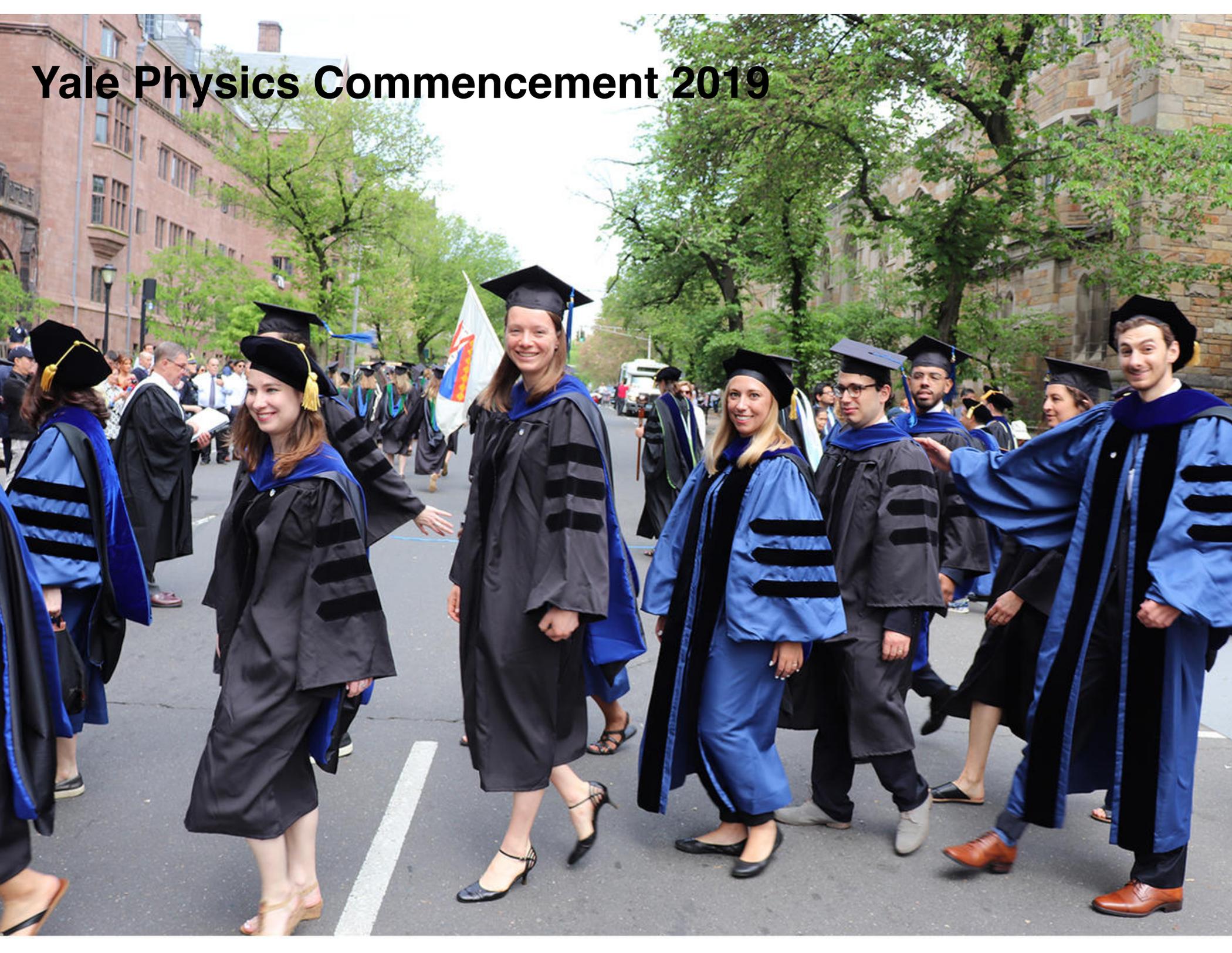


Trevor Wright has been awarded an **NSF Graduate Research Fellowship for 2019**



Sheridan Green has been awarded an **NSF Graduate Research Fellowship for 2019**

Yale Physics Commencement 2019



Physics Staff > 15 Years of Service



	Years of Service	Physics
Jeff Ashenfelter	31	31
Karen De Felice	43	43
Paula Farnsworth	16	16
Tom Hurteau	27	27
Stephen Irons	18	18
Frank Lopez	16	16
Lillian Vinston	17	17
Hannah Carroll	28	23

Thank you for all your support!

Welcome to our New Faculty



Larry Gladney

Phyllis A. Wallace Dean of Diversity and Faculty Development in the FAS; Professor of Physics

Observation cosmology (LSST) , particle physics

Alison M. Sweeney, Ph.D.
*Associate Professor of Physics and Ecology
& Evolutionary Biology*

Biological soft matter and its evolution. Evolutionary mechanisms underlying episodes in which the evolutionary process discovers a novel mode of self-assembly.



Eduardo Da Silva Neto, Ph.D.
Assistant Professor of Physics

arriving summer 2020

Experimental studies of quantum materials with advanced spectroscopic techniques targeting the discovery and investigation of emergent electronic quantum states of matter

2019 Presidential Visiting Fellows

Shelly Leshner, Ph.D.

Associate Professor of Physics, University of Wisconsin-La Crosse

Director of the American Physical Society's (APS) Conference Experience for Undergraduate Students for the Division of Nuclear Physics and Chair of the APS Committee on International Freedom of Scientists.

Experimental low-energy nuclear physics and developing the next generation of scientists. Developed a course to educate scientists and non-scientist on the topics of nuclear weapons, energy, and policy in society using a multidisciplinary approach



Sarah Veatch, Ph.D.

Associate Professor of Biophysics and Physics, University of Michigan

Veatch lab at the University of Michigan experimentally investigates roles for criticality in signaling pathways initiated within the plasma membranes of cells. She also uses and has developed super-resolution fluorescence localization microscopy methods to probe membrane mediated interactions in cell membranes.

Veatch will work with her long-time collaborator Ben Machta on two recently funded projects. The first explores how ion channel function is modulated by heterogeneous membranes. The second explores coupling between 2D phase transitions in membranes and 3D phase transitions in polymers.



Look for new courses!

Yale *Physics*

New Research Faculty, Postdocs, Postgrads

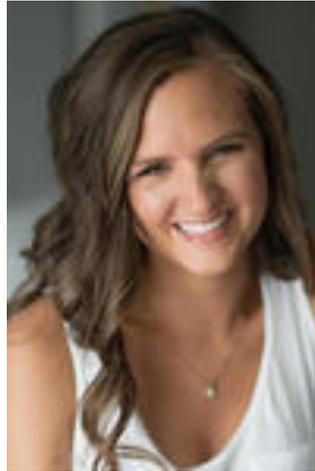


Steve Konezny
Scientist
Energy Science Institute, West Campus

Nikolay Gnezdilov

Laura Havener

Zhijin Li



Zachary Mark Raines

Jack Roth

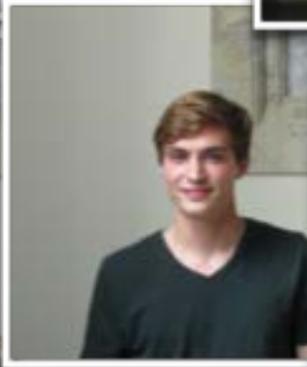
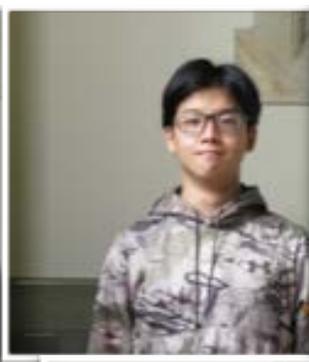
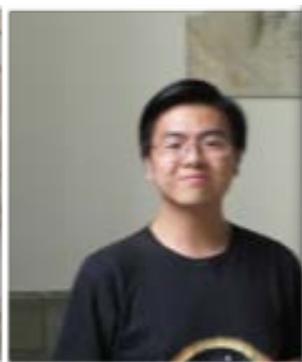
Jared Daniel Rovny

Tuna Uysal





2019 New Graduate Students



2019 New Graduate Students



2019 New Graduate Students

Non-Physics Goals

Build a bicycle

Learn Chinese

Learn a musical instrument

Be a better person

Learn another language

Learn to rock climb

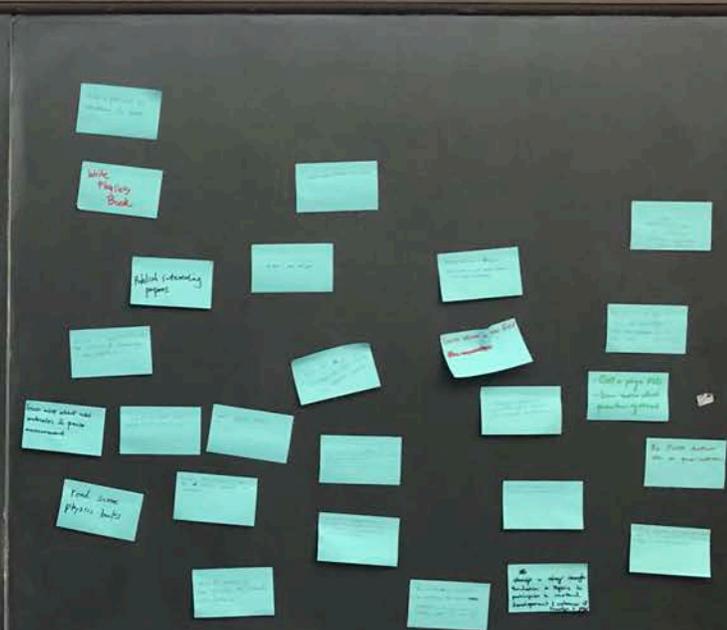
Become a better cook

Make some good friends

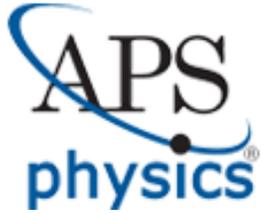
Sleep

Go skydiving

Physics Goals



Code of Conduct



Code of Conduct for APS Meetings

It is the policy of the American Physical Society (APS) that all participants, including attendees, vendors, APS staff, volunteers, and all other stakeholders at APS meetings will conduct themselves in a professional manner that is welcoming to all participants and free from any form of discrimination, harassment, or retaliation. Participants will treat each other with respect and consideration to create a collegial, inclusive, and professional environment at APS Meetings. Creating a supportive environment to enable scientific discourse at APS meetings is the responsibility of all participants.

Participants will avoid any inappropriate actions or statements based on individual characteristics such as age, race, ethnicity, sexual orientation, gender identity, gender expression, marital status, nationality, political affiliation, ability status, educational background, or any other characteristic protected by law. Disruptive or harassing behavior of any kind will not be tolerated. Harassment includes but is not limited to inappropriate or intimidating behavior and language, unwelcome jokes or comments, unwanted touching or attention, offensive images, photography without permission, and stalking.

...treat each other with respect and consideration to create a collegial, inclusive, and professional environment..

...avoid any inappropriate actions or statements based on individual characteristics such as age, ace, ethnicity, sexual orientation, gender identity, gender expression, marital status, nationality, political affiliation, ability status....

Climate and Diversity Committee

Mission

To support the Department's goals to provide a safe, supportive, and inclusive environment for every member of our community. We are committed to creating a work place whose core principles are based on diversity, equity, and inclusion for every staff member, student and faculty as we strive to obtain our goals of excellence in research, teaching, and mentoring.



chair: Prof. Helen Caines



gsa.yale.edu

What can *we* do to help *you*?

Physics Representatives

Ryan Petersburg

GSA Vice Chair

ryan.petersburg@yale.edu

Jeremy Gaison

GSA Treasurer

jeremy.gaison@yale.edu

Estella Barbosa de Souza

Academic and Professional Development

estella.desouza@yale.edu

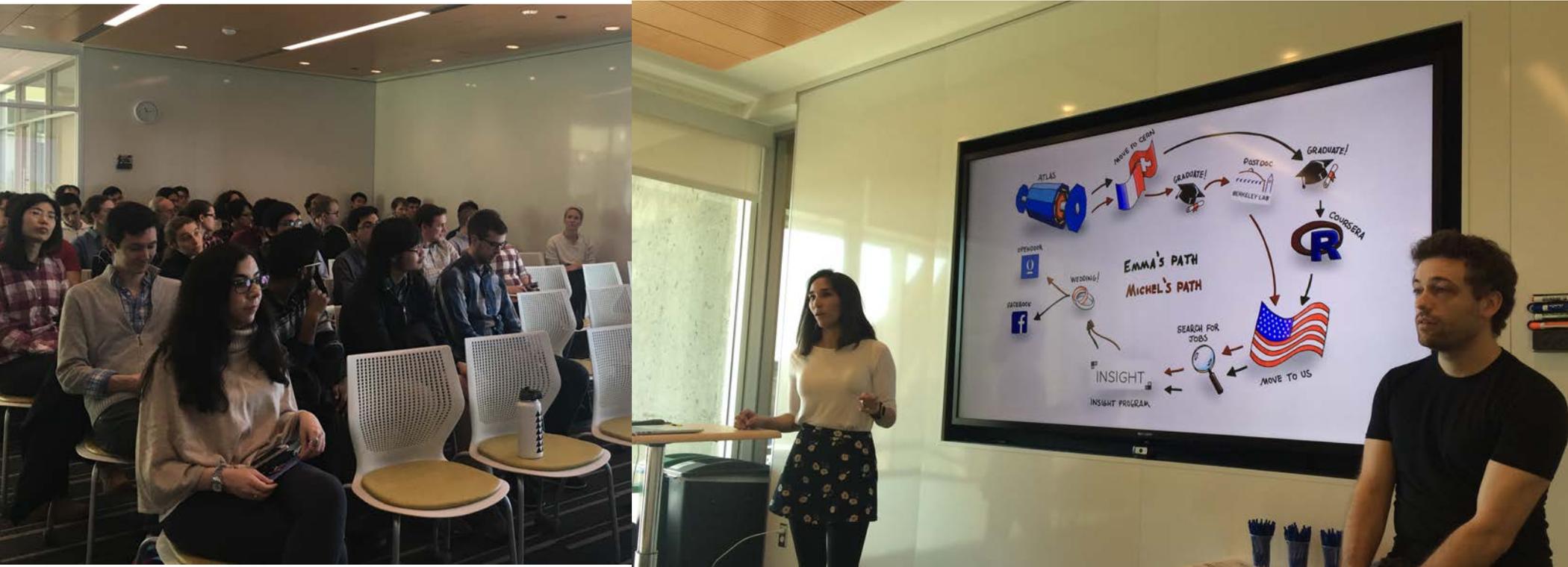
Catherine Matulis

catherine.matulis@yale.edu

Yale *Physics*

Yale Physics Professional Development Organization

Expose physics PhDs and PhD candidates to a wide range of **career opportunities**, mostly **non-academic**, and provide **professionalization resources**.



<https://yppdo.yale.edu/>

Yale Physics Professional Development Organization

What we do

- Host speakers, mostly physics PhDs, to talk about their career paths after physics
- Organize workshops on academic and non-academic professionalization topics
- Provide information on the resources already offered by Yale, such as events organized by Office of Career Strategy and other student organizations



Mary Lou Bailey

marylou.bailey@yale.edu

Applied Physics, 5th year



Estella Barbosa de Souza

estella.desouza@yale.edu

Physics, 6th year



Emma Castiglia

emma.castiglia@yale.edu

Physics, 4th year

Yale *Physics*

Women in Physics +

Emma Castiglia and
Lauren Saunders



Emma Castiglia



Lauren Saunders

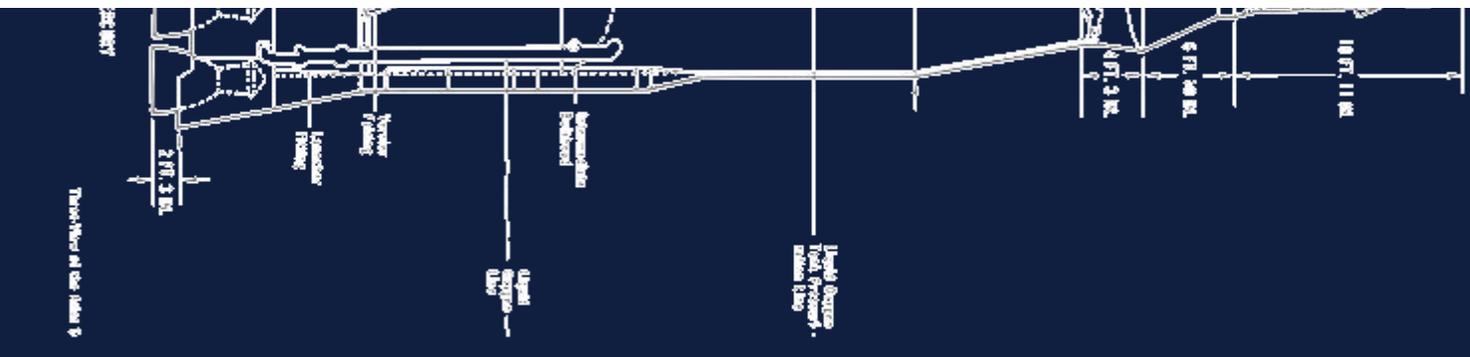
stay tuned!

Yale *Physics*

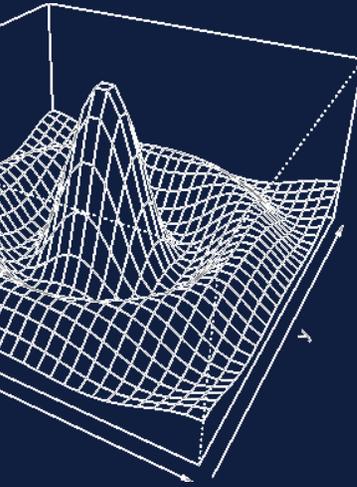
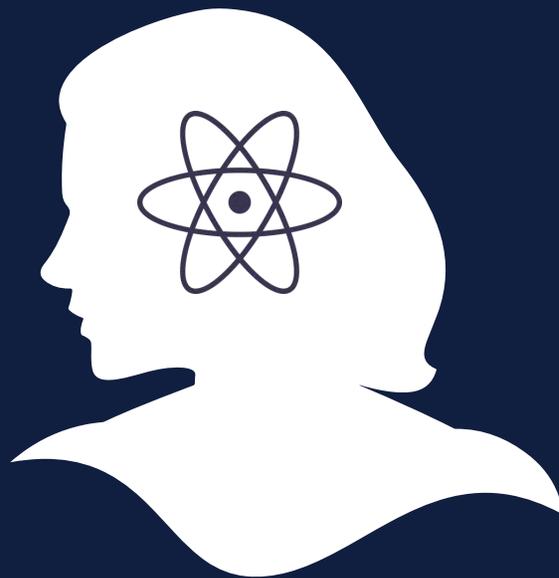
Undergraduate Women in Physics



faculty advisor: Prof. Sarah Demers

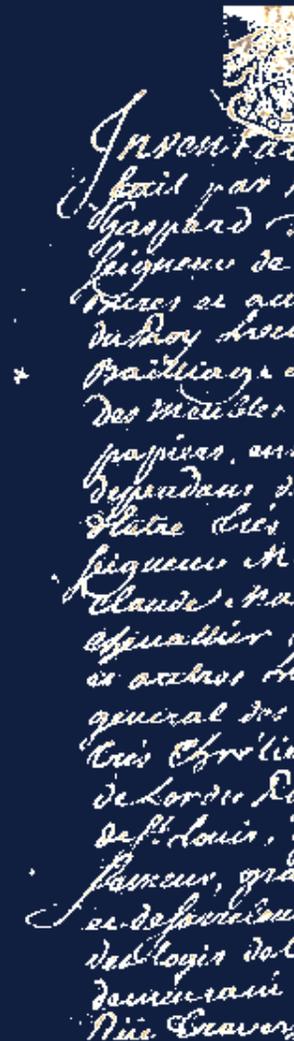


APS CONFERENCE FOR
UNDERGRADUATE
WOMEN IN PHYSICS



JANUARY 17-19, 2020 | NEW HAVEN, CT
YALE UNIVERSITY
cuwip.yale.edu

Apply by Friday, October 4th 2019



Inventaire
fait par
Gaspard
Piquereau de
Paris et au
d'Amoy de
Paris
des manuscrits
papiers, au
dependance de
M^{re} de
Piquereau de
Claude de
L'equation
et autres de
general de
Cris Chretien
de Lorde de
des^{se} Louis,
Panneur, gra
et de l'ancien
des logis de
d'ancien
M^{re} Craver

Yale *Physics*

Looking Ahead

Yale

Report of the University Science Strategy Committee

Topics of interest to Physics

priority areas

data science

quantum science

cross-cutting initiatives

instrumentation

diversity

Yale *Physics*



Looking Ahead - *Updating Our Web and Media Presence*

Home News Research People Calendar Academics Employment About Outreach



Honorable Mention - Photo by Emily Kuhn

Welcome!



Your suggestions welcome!

Announcement

[Comments and Suggestions.](#)

Upcoming Seminars in the Physics Department

[EHS Orientation for Wright Lab
Research Shop Users](#)
09/09/2019 - 1:00pm to 2:00pm

[Physics Club: Karsten Heeger, Yale
University, "Department Welcome
2019"](#)
09/09/2019 - 3:30pm to 4:30pm

[Dissertation Defense: Charles Brown,
Yale University, "Optical, Mechanical
and Thermal Properties of Superfluid](#)

Yale *Physics*

Yale Physics Activity Calendar

Department of Physics

[Home](#) [News](#) [Research](#) [People](#) [Calendar](#) [Academics](#) [Employment](#) [Links](#) [Contact Us!](#)

HOME » CALENDAR » PHYSICS INTERNAL ACTIVITY CALENDARS

Physics Seminar
Calendar

External Seminars of
Interest

Physics Club

Prize Lectures

Outreach Events

Physics Internal Activity
Calendars

Physics Internal Activity Calendars

Yale Physics Department Activities (overview) - updated weekly

Today August 2019 [Print](#) [Week](#) [Month](#) [Agenda](#)

Sun	Mon	Tue	Wed	Thu	Fri	Sat	
28	29	30	31	Aug 1	2	3	
	3:30pm Atomic Physics	10am Bootcamp Group	10am Peabody camp a 6:30pm Undergraduate				
4	5	6	7	8	9	10	
	Amistad interns						
	9am Physics Bootcamp; 9:30am Wright Lab Un	9am Admin Staff Meeti 1pm Amistad interns at	9am Physics Bootcamp; 11am Underrepresenta 3pm Art Gallery tour wi +2 more	9am Physics Bootcamp;	9am Physics Bootcamp; 12pm Staff Picnic		
11	12	13	14	15	16	17	
	9am Physics Bootcamp;	9am Physics Bootcamp; 6pm YPA meeting	9am Physics Bootcamp; 6:30pm Undergraduate	9am Physics Bootcamp;	9am Physics Bootcamp;		
18	19	20	21	22	23	24	
	1:30pm Atomic Physics;	3:30pm Atomic Physics;	Yale Residences open 10am Dissertation Defe 6:30pm Undergraduate		Graduate Student Ori		
25	26	27	28	29	30	31	
	Faculty Retreat 2pm Fall Teaching at Y	2pm Academic Fair 20	Yale classes begin 1pm Overview of WL re 1pm Wright Lab Resou 2:30pm Grad orientatic	10am Qualifying Exam 2pm Qualifying Exam p	Monday classes meet 9am Qualifying Exam p 2pm Qualifying Exam p		

Events shown in time zone: Eastern Time - New York

Suggestions welcome!

Department of Physics

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Comments and Suggestions

We welcome your comments, feedback and any suggestions regarding the Yale Physics Department. Information submitted through this form is confidential and will be received by the Chair's office. Name and contact information are optional if you wish to remain anonymous.

Comments: *

Name:

E-mail address

CAPTCHA

This question is for testing whether or not you are a human visitor and to prevent



Looking ahead - Building Community



Welcome your proposals and ideas!



Physics & Applied Physics
invite you and your family to the

Annual Welcome Reception
in honor of new faculty, students, and staff

Wednesday, September 11 – 6pm – 8pm

355 Prospect St
Leitner Family Observatory & Planetarium

**RSVP by September 9, 2019 at:
2019 Welcome Picnic RSVP**

Have a great and productive year!

