Welcome to Yale Physics

Graduate Program Orientation 2021
Yale Physics Graduate Program Team

Prof. Bonnie Fleming  
*Director of Graduate Studies*

Dr. Rona Ramos  
*Graduate Program Coordinator*  
*Lecturer*

Stacey Watts  
*Graduate Registrar*

Prof. Karsten Heeger  
*Chair, Department of Physics*  
*Director Wright Laboratory*
Diversity, Equity, and Inclusion

Statement of Principles

**Respect**
We continually strive to make our department a place that respects people with diverse backgrounds and values each others’ creativity.

**Well-being**
We commit to actively engage in creating a supportive and safe environment. Criticism and praise are professional and constructive.

**Integrity**
We carry out our work with honesty and with the highest standards. We shall not commit scientific or academic misconduct, defined as plagiarism, fabrication, or falsification.

**Community**
Our community actively includes all, enhancing collaboration and promoting our common mission to advance the frontiers of knowledge.

https://physics.yale.edu/statement-principles

https://physics.yale.edu/diversity-equity-and-inclusion
Yale Physics Graduate Program

People

faculty (primary)  35
faculty (secondary)  24
grad students (physics only)  132

Median time to graduation  6.2 yrs

Diverse interests/interdisciplinary opportunities

applied physics
astronomy/astrophysics
biological physics/systems biology
materials science

Recent Alumni

https://physics.yale.edu/people/alumni
**Research Areas**

broad research portfolio in experiment and theory

new science initiatives on campus

- quantum science
- data science
- instrumentation

https://physics.yale.edu/research
Yale Physics in Research Centers & Institutes

- Wright Laboratory
- Yale Quantum Institute
- Yale Center for Astronomy and Astrophysics (YCAA)
- Yale's Integrated Graduate Program in Physical and Engineering Biology (PEB)
- Systems Biology Institute
- Energy Science Institute (ESI)
- Quantitative Biology Institute [QBio]
Yale Physics on Science Hill (and West Campus)
State-of-the Art Facilities

https://wlab.yale.edu
Yale Physics on Science Hill

**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
Yale Physics on West Campus

Energy Sciences Institute (ESI)
- Eduardo da Silva Neto
- Steve Konezny

Systems Biology Institute
- Ben Machta
Physics Graduate Program Learning Objectives

• Students will acquire a general foundational knowledge of physics at the graduate level and the necessary accompanying methodological aspects of mathematics, computing, and instrumentation.

• Students will learn to identify and solve problems at the frontier of physics knowledge, uphold standards of scientific integrity, and disseminate their research.

• Students will become educators and communicators with the ability to promote an understanding and appreciation of physics across the university and in society.

• Department members and students will work together to develop and realize, in the department and in the community, progress and success in diversity, equity, and inclusion in all aspects of the scientific enterprise.
Getting to know each other…

Go around the room

→ name
→ where you are from
→ research interests
→ something about yourself (hobby?)
The first two years...

Requirements

- Academic Coursework
  - 6 core courses, SI, 515, 590, one elective
  - HP average, two H
- Teaching during academic year
- Trying out Research groups and finding and advisor
  - Research during the academic semesters
  - Phys 990 (SI)
  - Summer research
- Qualifying Events
  - Research QE: At the end of Phys 990
  - Written QE: at the beginning of 2nd year

Teaching/Classes → Research

Spring and Fall semesters of 1st and 2nd year
- Supported on University Fellowship
  → Teaching, taking classes

Summer after 1st and 2nd year
- Supported by a Research Group
  → Research experience(s)

Goals:
- Complete required coursework
- Complete Qualifying Events
- Find a research group (ideally by the beginning of your 2nd year summer)
Balancing Coursework and Research

- Time on University Fellowship → time to complete required coursework
  - Spread out required coursework and move into research, requirements permitting
  - Or, complete coursework more quickly and move into full time research, requirements permitting

Finding and Advisor

- Learn about research programs in Phys 515
- Attend seminars, colloquia (Physics and other departments)
- Talk to faculty! And their students/PDs
- See resources “Finding and Advisor” in Graduate Handbook and in Advising Guidelines
- Many students have Advisors outside of Physics!
- Talk to Graduate Program Team
Physics Program Details

Graduate School of Arts & Science Official Policies

- Yale Physics Official Program, Faculty, and Courses
- Yale University Graduate School of Arts and Sciences Academic Policies
- Graduate School Academic Calendar

Physics Graduate Policies and Guidelines

- Physics Graduate Handbook 2021 - pdf version
- Physics Graduate Handbook 2020 - pdf version
- Physics Specific Advising Guidelines
- 2021 Qualifying Exam and Curriculum Committee Report

Forms

- Research Qualifying Event Feedback Form
- Thesis Progress Report Form
- Graduation Check List
- Course Change Form
- Change of Status Form
- Degree Petition
- Notification of Leave/Graduation
- Individual Study Course Information
- Phys 990 Cover Page
- Other Registrar Forms

Link to communication tools to come:
- Slack
- Discord
- Email lists
- etc.
Academic Life and Campus Resources

Physics Colloquia and Seminars

Department of Physics

Graduate Student Leadership

Student organizations
Graduate Student Advisory Committee (GSAC)
Graduate Student Assembly (GSA)
Town halls
Regular meetings with department leadership

Yale Scientific Teaching Course

Yale Science Diplomats

teaching fellows
teaching certificates

outreach
advocacy
Yale Campus Resources

Resources for Students

At Yale, you will find an extraordinary range of resources to fuel your intellectual and academic passions, and to support you as you work toward your academic goals. Libraries and labs, working groups, funding sources, mentors and advisors, health and wellness resources, and more - you will weave all of these together to shape the best possible plan that suits your own needs and interests during your time as a student here.

Residencies

Financials & Fellowships

Advising & Menuingers

Teaching Support & Development

Writing & Communication Skills

Career Support & Development

Contact, Professional Ethics & Reporting Misconduct

Exchange Programs

Student Life & Community

Life Skills & Personal Development

Health & Wellness

Student Governance

Student Organizations

Housing & Life in New Haven

Resources for Students

Diversity

Diversity

Office for Graduate Student Development & Diversity

Staff & Fellows

Edward A. Behrman Conference

OGSDD Galleries

For Current Students

For Perspective Students

OGSDD Fellows Application

https://gsas.yale.edu/diversity

Yale Physics
Campus & Career Resources

Academics, Teaching, & Beyond

Academic Calendar
https://gsas.yale.edu/academic-events

Graduate School of Arts & Sciences
1 Hillhouse Avenue; (203) 432-2770
https://gsas.yale.edu/

Graduate School of Arts & Sciences - Complete list of student resources
https://gsas.yale.edu/resources-students

Graduate School of Arts & Sciences Dean's Office
1 Hillhouse Avenue; (203) 432-2733
http://gsas.yale.edu/office-directory

Poorvu Center for Teaching and Learning
301 York Street; (203) 432-4765
https://poorvucenteryale.edu/GraduateStudents

Graduate Teaching Opportunities (Years 4+)
https://yaleteachingopps.org/

Office of Career Strategy
55 Whitney Ave, 3rd Floor; (203) 432-0800
Student Groups

Climate and Diversity Committee

Women in Physics (+Allies)

Yale Physics Professional Development Organization

Graduate Student Assembly

Department Social/Happy Hour

Physics LGBTQ+
Outreach Opportunities

https://physics.yale.edu/outreach-events
Student Groups, Activities, and Committees

Yale Physics Orientation 2021
Student Groups, Activities, and Committees

- **GSA**- Graduate Student Assembly
- **GSAC**- Graduate Student Advisory Committee
- **APS-IDEA**- American Physical Society Inclusion, Diversity, and Equity Alliance
- **CDC**- Climate and Diversity Committee
- **GSI**- Girls Science Investigation
- **YPPDO**- Yale Physics Professional Development Organization
- **QuARK**- QUeer-Affiliated f RIends of physiKs
- **Women**+ in Physics
- **WIQI**: Women in Quantum Information
- **Department Happy Hour**
Representative
We are democratically elected Physics graduate students that represent your interests in the GSAS student government and give you a direct line of communication to university leadership.

Advocacy
We regularly meet with GSAS Deans, the Provost’s Office, and the University President to advocate on behalf of all graduate students.

Support
We provide services for all graduate students such as Tax Facts, Ask-a-Lawyer, and The Compass: A Guidebook to Life as a Graduate Student at Yale (now VIRTUAL! gsa.yale.edu/compass).

Get Involved!
Reach out to us if you’re interested in university administration or advocacy! GSA General Assembly Meetings are open to the public (first meeting is Sept 7, 6pm on zoom) and elections are held in March/April.
Physics Graduate Student Advisory Committee (GSAC)

**Representation**
The composition of the committee includes at least one representative from each cohort, with a primary goal of representing inclusive and diverse sets of interests.

**Year 2 (and 1)**
Iris Ponce

**Year 3** – Arina Telles, Joseph Shomar, Samantha Pagan

**Year 4** – Caitie Beattie, Hannah Bossi, Aniket Maiti

**Year 6+-** Sumita Ghosh, Emily Kuhn, Sohan Vartak

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**Point of Communication:**
Serves as a point of communication between graduate students and the administration of the department.

**Advocacy**
GSAC meets with the Chair and DGS at least once a month to advise them and advocate on behalf of graduate students within the department.

**Events**
GSAC members help organize annually scheduled department events, such as Open House.

**Leadership**
If you have any questions or concerns about the department, do not hesitate to reach out to one of us (via Slack, email, etc.)!

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**Interested? NOMINATIONS IN JANUARY**

Meetings, Minutes, and Information:
https://physics.yale.edu/academic/graduate-studies/GSAC

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**Physics-GSAC@mailman.yale.edu**
APS Inclusion, Diversity, and Equity Alliance (APS IDEA)

Shared effort across universities and national labs

Next conference Oct 1st - Registrations open!

New members orientation: Sept 17th

Contact: Rona Ramos (rona.ramos@yale.edu)
Emily Kuhn (emily.kuhn@yale.edu)
Aniket Maiti (aniket.maiti@yale.edu)

https://www.aps.org/programs/innovation/fund/idea.cfm
Girls’ Science Investigations

Empowering and inspiring girls to pursue careers in science and engineering

GSI invites middle school girls to explore science through fun projects. The projects are themed around concepts in physics, chemistry, and engineering.

The program relies on volunteers, primarily from Yale and local high schools. Anyone can volunteer if they want to make a better environment for women and girls in STEM!

Contact: lauren.saunders@yale.edu

Visit https://gsi.yale.edu
Yale Physics Professional Development Organization

Our goal

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

For more information visit https://yppdo.yale.edu/

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

Transiting to Data Science Panel

January 31, 2019 at 12:00 p.m. in WL-216

Join the YPPDO and OCS for a panel discussion with Wengnan Liu (UCI), Unni Larson-Becker (PNNL), and Patrick Young (Yale) on their transition into the world of data science. Data scientists take on a large variety of roles across different industries, using the data to make decisions. Come learn more about the field and get some great tips on how to get prepared to transition into it.

Lunch is served starting at 12:00 noon. RSVP requested.

Sponsored by the Yale Wright Laboratory, the Yale Physics Department, and the Yale Office of Career Strategy.
We’re here, we might be queer, come and have some bagels.

To join the mailing list, email sumita.ghosh@yale.edu or caitie.beatie@yale.edu.
Women in Physics+

Who are we? WIP+ is focused on fostering a supportive environment for underrepresented genders in the Physics, Applied Physics, and Astronomy departments. We coordinate mentoring and social events for graduate students, post-docs, research scientists, and faculty. The group and many events are open to all allies in the department, from whom we welcome support for our initiatives.

What do we do?
- Monthly Coffee Chats
- Monthly Lunches with the Allies
- Special Events: Apple Picking, Ice Cream, Brunch, Graduating Student Farewell
- Advocacy: Initiatives within the department, Women in Physics Families with the Undergrad WIP group

WIP+ Board: Feel free to reach out to any of us!
Twitter: @yale_wip
Chairs: Samantha Pagan, Hannah Bossi, Ava Polzin, Rachel Cooper, Caitlin Gish, Iris Ponce
Faculty Advisor: Simon Mochrie
Mailing Lists
WiP+: physics-wip@mailman.yale.edu
WiP+ Allies: physics-wip-allies@mailman.yale.edu
More info contact: samantha.pagan@yale.edu or hannah.bossi@yale.edu
Women in Quantum Information

Group objectives:

• Advocate for an increased representation of women in condensed matter/quantum-information groups at Yale
• Create a opportunity for self-identified women in QI to discuss research and present challenges navigated in climbing the academic ladder
• Voice requests for more women invited speakers in Yale quantum information colloquia

Activities in the past year:

• Monthly lunches open to self-identifying women students, postdocs, faculty in quantum information, condensed matter
• Lab tours open to all students led by WIQI members
• Title IX Workshops open to all members of YQI/Becton
• Research discussions and presentations among WIQI members

Contact:
florian.carle@yale.edu
racquel.miller@yale.edu
jaya.venkat@yale.edu
Physics Happy Hour

• Social gathering on the last Friday of every month.
• Within current COVID regulations, we plan to have in person gathering with free snacks and drinks.

Current Happy Hour Crew
Charles Lomba  charles.lomba@yale.edu
Kirsty Scott  kirsty.scott@yale.edu
Andrew Ton  andrew.ton@yale.edu
Other Groups and Activities

Informal Groups

- Running group
- Book clubs
- Anti-racist reading group
- Gaming groups (DND)
- Ask around!

Clubs and Groups throughout the graduate school and university!