

# Yale Department of Physics

Yale Physics Newsletter

June 28/July 5, 2019

For further information on any of the items included here or if you would like to contribute to the next newsletter, send email to [Daphne Klemme](mailto:daphne.klemme@yale.edu).

During the summer months the newsletter will be produced every two weeks.

## Hints & Tips!

Welcome to our hints and tips section! Please email [daphne.klemme@yale.edu](mailto:daphne.klemme@yale.edu) with any helpful tips that will help us work to our best ability.

## Notary Public Services information

If you need notary public services, the following are available (there may be a small fee for this service):

- Yale Public Safety in the Central ID Center located at 57 Lock Street, 8:30am-4:00pm Monday-Friday, excluding recess and holidays (<https://your.yale.edu/community/public-safety/public-safety-systems/notary-public>)
- Employee Service Center Front Desk located at 221 Whitney Avenue, 8:30am-5:00pm Monday-Friday, excluding recess and holidays
- Notary services are available at most banking and financial institutions. You can also contact your local town hall, city hall, or county courthouse to locate a notary

## Climate and Diversity Committee News

A Note from the [Climate and Diversity Committee](#) (CDC).

The CDC convenes once a month. If interested in joining please contact Helen Caines ([helen.caines@yale.edu](mailto:helen.caines@yale.edu), Chair of CDC). You may contact the whole committee at [physics-cdc@mailman.yale.edu](mailto:physics-cdc@mailman.yale.edu)

## News

Summer is upon us and I need items to keep our Facebook (<http://www.facebook.com/YalePhysicsDept>) page busy. Please send me a photo and brief statement of your summer research projects so that I can post them – it is exciting to see where everyone goes and what they are doing!

## Save the Date

Yale Summer Sessions, dates are: Summer Session B: July 1-August 2, 2019; University Preparations 3-week Program: July 1-19, 2019. Graduate student orientation is August 23, 2019. Classes start August 28, 2019.

## Seminars

### Monday, July 1

2:30pm in Watson Center A-51. Department of Astronomy Dissertation Defense. Angelo Ricarte, Yale University, "The Assembly of Supermassive Black Holes: from the Seeding Epoch to the Present Day".

### Wednesday, July 3

2:00pm in Leet Oliver Memorial Hall 206. Department of Mathematics Colloquium. David Freund, Harvard University, "Surfaces and Strings".

### Wednesday, July 10

2:00pm in Sloane Physics Lab 38. Dissertation Defense. James Ingoldby, Yale University, "EFTs for Nearly Conformal Gauge Theories". Thesis Advisor: Thomas Appelquist.

For more seminars see: <http://physics.yale.edu/calendar>



**Shany Danieli** (Graduate student with van Dokkum) along with Carolyn Raithel (U. Arizona) has won the 2019 Price Prize in Cosmology and Astrophysics. Shany Danieli uses innovative methods and instrumentation to discover faint

galaxies and study their dark matter content. She designed and leads the Dragonfly Wide Field Survey, a comprehensive survey of the low surface brightness Universe using the Dragonfly Telephoto Array. In 2019, she provided the strongest evidence yet for the existence of a class of galaxies that lack dark matter.

[Click here for full information about the prize](#)



**Amber Young** (YC'2021) Physics (Int.) Major - This summer, I am working in the Crab Lab at the Georgia Institute of Technology, which investigates the locomotion of micro and macro organisms, and the physics of how these living systems navigate their environments through a robophysical approach.

The purpose of my experiment the summer is to understand the neuromechanics of single-celled algae locomotion. Like horses, giraffes, and other four-legged animals, some unicellular algae also have dynamic movement patterns that allow them to swim efficiently in response to changes in their environment; however, these microorganisms lack complex nervous systems. I am building and programming a multiflagellate robot that mimics the motion of these quadruped, unicellular algae in order to better understand how their equivalent nervous system works.



**Meng Cheng** (Assistant Professor of Physics) research in the news. **“A tool for identifying phases of matter”**

Even if you’re not a physicist, phases of matter ... really matter. They’re the distinct physical forms taken on by all the “stuff” in the universe, from icebergs to ozone, and now Yale scientists have developed a more accurate way to help classify some of them.

[Click here for full article in Yale News \(June 19, 2019\)](#)



**Charles H. Ahn**, recently named as the John C. Malone Professor of Applied Physics, focuses his research on the fabrication and characterization of the physical properties of materials using advanced synthesis and measurement techniques, such as molecular beam epitaxy and synchrotron x-ray experiments.

[Click here for full article in Yale News \(June 17, 2019\)](#)



**Ben Machta** (Assistant Professor of Physics) named Simons Investigator

**MMLS**

Benjamin Machta  
Yale University

Ben Machta examines how physical laws constrain the design principles of biological systems. His research uses statistical physics, information theory and Riemannian geometry to understand how the need to coordinate and process information constrains function. He has worked to understand how simple models emerge from complex molecular details and to bound the energetic needs of small thermodynamic systems. He has also sought to understand how cells exploit the subtle physics near critical points to sense and respond to their environment.

[Click here for entire list of investigators](#)

[Click here for more information about the program](#)



Congratulations to **Susan Pratt** on the successful defense of her dissertation “Development and implementation of a reversibly-interacting TRAP-peptide pair as a live-cell imaging strategy”! Her thesis advisor was Simon Mochrie.

**News from Yale Travel Management (June 2019)**

- [CT Limousine has closed](#)
- [Safe Summer Travel](#)
- [Travel advisories](#)
- [Rental cars carry a steep price when using cashless tolls](#)

[Click here for Yale Travel Update.](#)

**Yale Women Wikipedia Edit-a-thon**

Women at **50** Yale **150**

Only 17% of Wikipedia bios are of woment and 90% of editors are men! Learn basic Wiki editing skills while building women’s history.

July 9, 2019, 11:30am-1:30pm Hosted by Yale SOM, 165 Whitney Avenue, [RSVP & details](#).

**Announcements**

[Please click here for updates on the Yale Science Building, including a new logistics plan](#). The project encompasses the construction of a new state of the art sciences laboratory at the approximate location of the demolished J.W. Gibbs building, a comprehensive renovation of the KBT Plaza, a lecture hall, and a common area at the south end of KBT Plaza.

**Yale Health Pharmacy closed for inventory Saturday, June 29**

The Yale Health Center Pharmacy will be closed on Saturday, June 29<sup>th</sup> for annual inventory. It will re-open Monday, July 1<sup>st</sup> at 8:00am. The pharmacy will also be closed on Thursday, July 4<sup>th</sup>.

**Opportunities**

**From the Yale Graduate School of Arts and Sciences**

I write to inform you about a unique postdoctoral fellowship. The [Schmidt Science Fellows Program](#), in association with the Rhodes Trust, has announced the 2019-20 fellowship competition. The fourteen-month postdoctoral program provides participants with a stipend of \$100,000 and features two core components: a.) 11 months of full-time postdoctoral research and b.) a global meeting series. Last year, the meetings took place in the United Kingdom (2 weeks), Massachusetts (1 week), northern California (1 week) and a concluding meeting in the United Kingdom (1 week). The program aims to expose participants to new scientific breakthroughs, new fields of studies, new micro-cultures, and new ideas that they will take with them throughout their lives. “We encourage our fellows to take a scientific risk this year and to think broadly and deeply about where across the globe they

undertake their interdisciplinary pivot.” Approximately 25 awards will be made in the spring of 2020.

Eligibility

Applicants must have received or expect to receive a Ph.D. in the natural sciences (Astronomy, Biology, Chemistry, Computing, Earth Sciences, Engineering, Mathematics and Physics) and all sub-disciplines therein between **May 1, 2019 and June 30, 2020**. Applicants must be interested in pursuing a year or more of postdoctoral study in a **different field** from the topic of study for which the applicant received the Ph.D.

Selection Criteria

- **Extraordinary Achievement** - Clear record of academic achievement in the sciences at leading institutions of higher learning
- **Alignment with the Program** - Interest in pursuing a year or more of postdoctoral study in a field different from the topic of study for which the applicant received his/her doctorate
- **Scientific Curiosity** - Desire to achieve a broad level of exposure to and knowledge in cutting-edge innovations and research across the sciences
- **Intellectual Spark** - High degree of intelligence, energy, and intellectual curiosity that will drive future scientific discoveries
- **Global Ambitions** - The will to make a lasting impact in the sciences and society, pursuing knowledge that will benefit the world by engaging in ambitious research and displaying great perseverance and appetite for risk throughout the scientific process
- **Collaborative Spirit** - Demonstrated history of effective collaboration with diverse team members
- **Use of Innovative Tools** - General interest and comfort in the use and potential of new ways of doing science, such as modern computing and data science techniques

During a phone Q&A session, the donor stated that he is looking for new Ph.D.s who have the qualities of individuals selected for the Rhodes Scholarship.

Yale Application Procedure

The Graduate School may nominate up to 7 recent graduates/students for Schmidt Science Fellowships. The internal **application deadline is Monday, July 15, 2019 at noon (EDT)**. Complete applications, including one letter of recommendation, must be received by this date for the application to be considered.

The application should include:

1. Schmidt Science Fellow internal application [coversheet](#).
2. A description of the applicant’s dissertation research with an emphasis on why the research represents a significant advance in the applicant’s field and current/future benefits to society (up to two pages).
3. Short, one or two paragraph statements addressing the seven criteria listed above (up to a total of two pages).

4. A statement (up to one page) describing what field, different from the dissertation field, the applicant plans to study and a tentative plan of study. The applicant may change this in the final application, if selected as a Yale nominee.
5. Updated CV or resume.
6. A letter of recommendation from the applicant’s dissertation adviser addressing the seven selection criteria listed above.

**The applicant should submit items 1-5 together as a single PDF document to [GSASadministrativedean@yale.edu](mailto:GSASadministrativedean@yale.edu). The dissertation adviser should independently submit a letter of recommendation to the same email address.**

Next Steps

Applicants will be notified by the end of July as to whether they have been nominated to the Foundation. Nominees will be provided with instructions on how to apply. Applications from nominees will be accepted no later than October 1, 2019. “Online shortlisting interviews” will occur late December 2019 or January 2020. The Foundation will announce their selections in April 2020 and the program will begin in the summer of 2019.

Additional information can be found at <https://schmidtsciencefellows.org/>.

If you are the unique type of student the Foundation is looking for, this is a fantastic opportunity to broaden your horizons.

Sincerely,

Richard G. Sleight  
Associate Dean  
Yale Graduate School of Arts and Sciences  
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