

PHYS 110 – Lecture 6

Today: Undergraduate Research Opportunities

- Announcements
- Intro to Physics research
- Faculty panel discussion

iClicker Question: What do I need to do to get a 'Satisfactory' (S) in Phys 110?

- A. Participate in 4 classes 75%
- B. Complete the online Laboratory Safety Training and email the certificate 18%, due Oct. 16
- C. None of the above
- D. All of the above

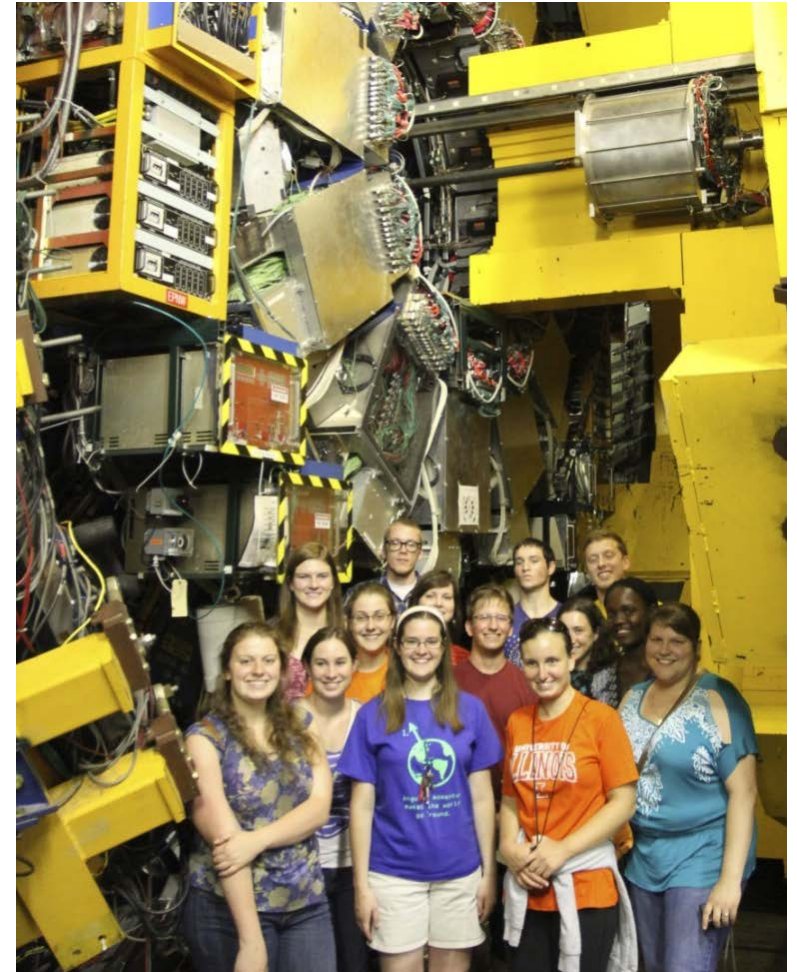
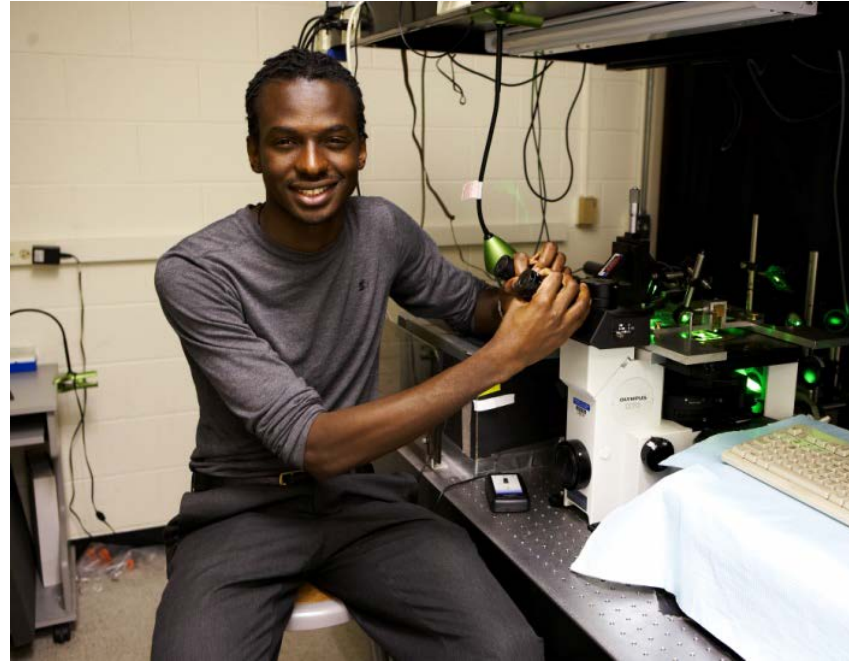
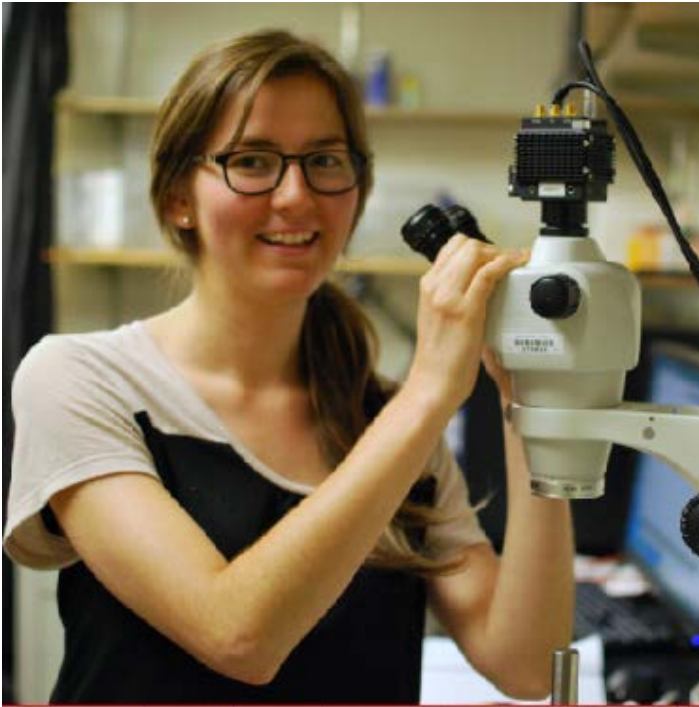


Only 2 lectures left! Check course website & gradebook!

<https://courses.physics.illinois.edu/phys110/fa2021/>

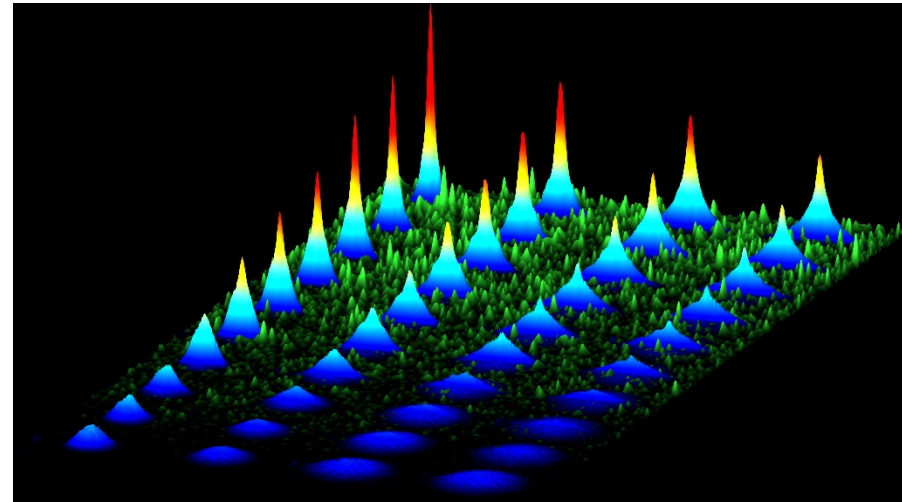
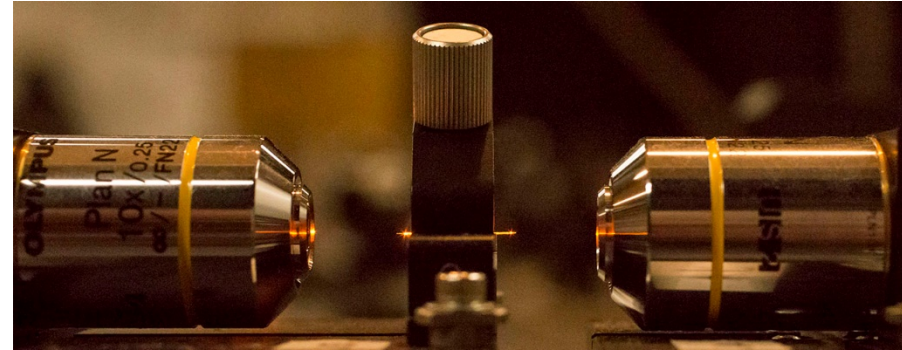
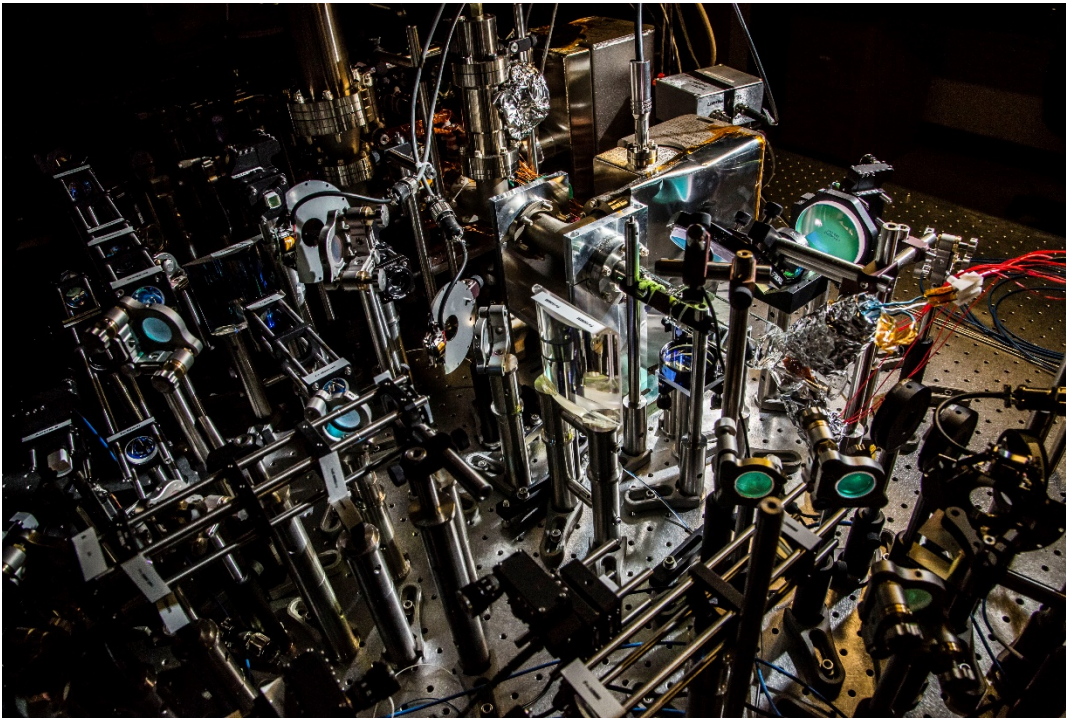
Undergraduate Research

Advantage of being at a big research university!



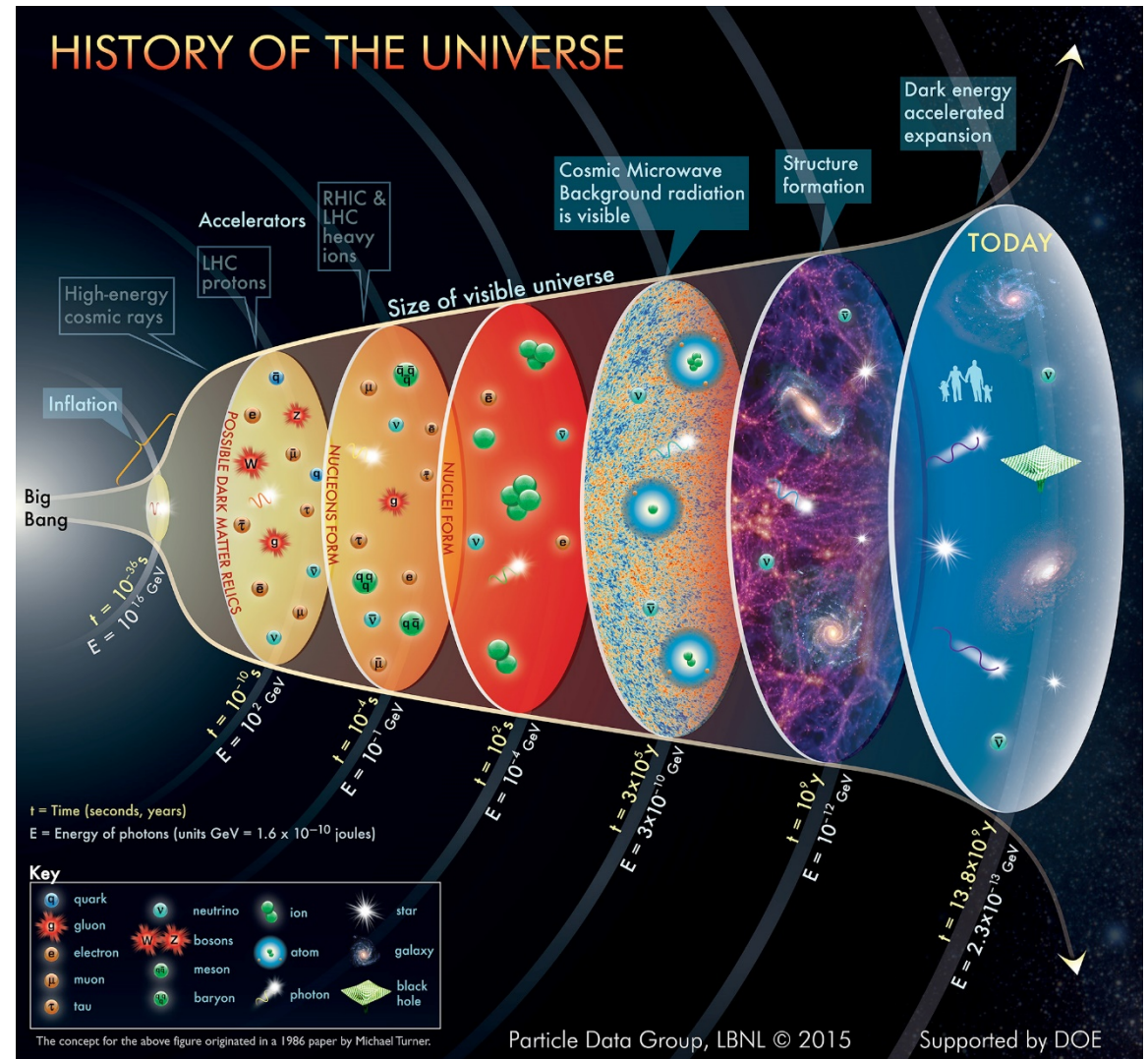
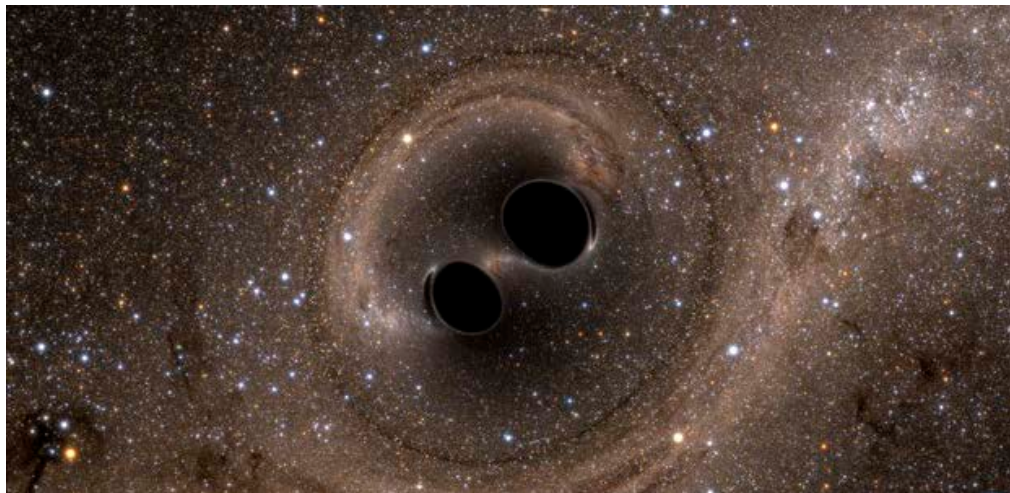
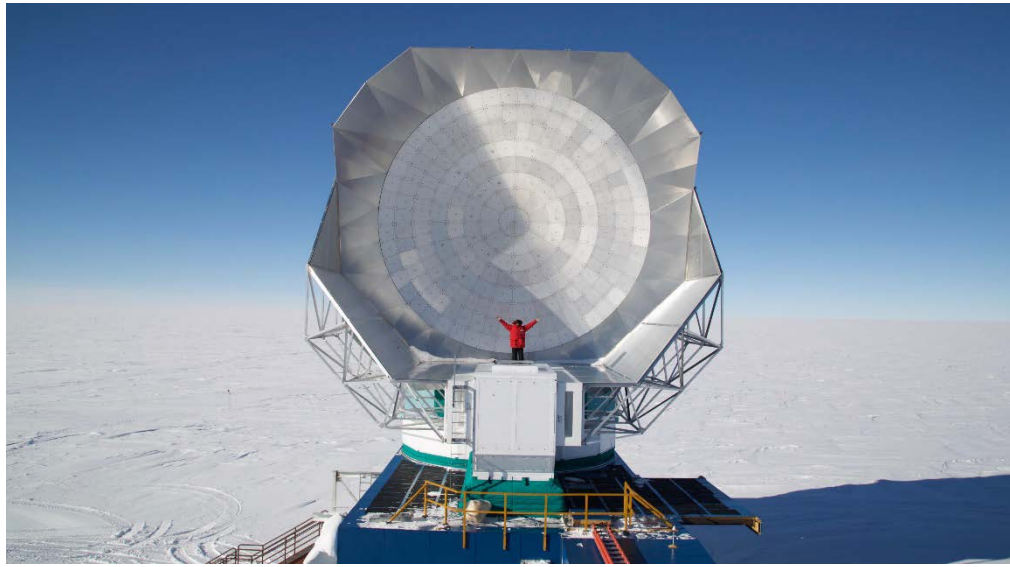
Atomic, Molecular, & Optical (AMO) and Quantum Information Science (QIS)

Interaction of light and matter: coldest stuff in the universe, exotic states of quantum entangled matter and light, quantum cryptography & communication, ...



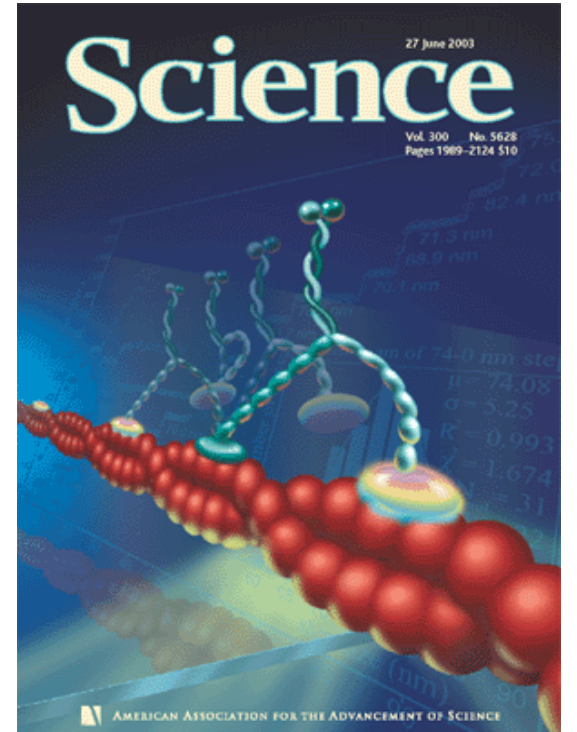
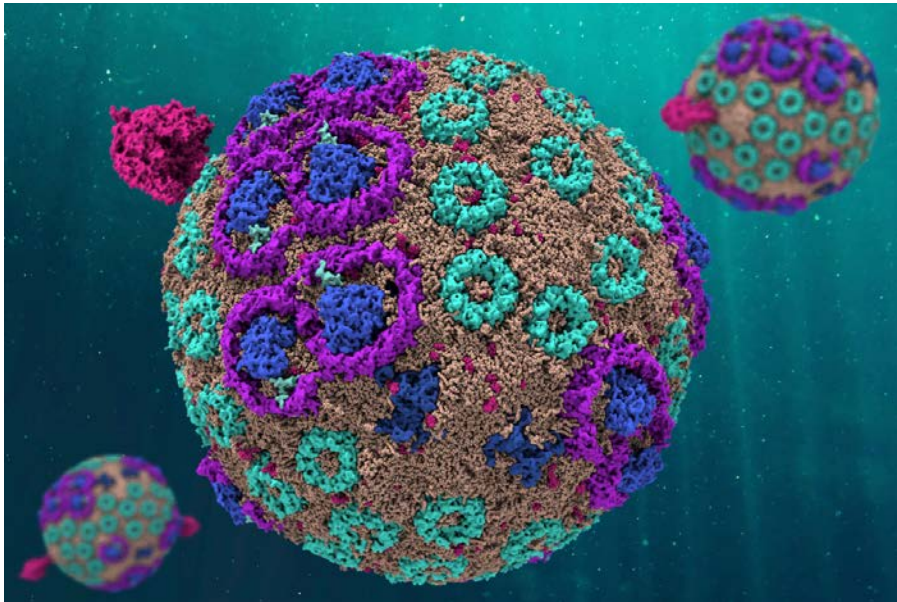
Astrophysics, Gravitation, & Cosmology

Nature at the largest scales: the big bang, dark matter, gravity waves, ...



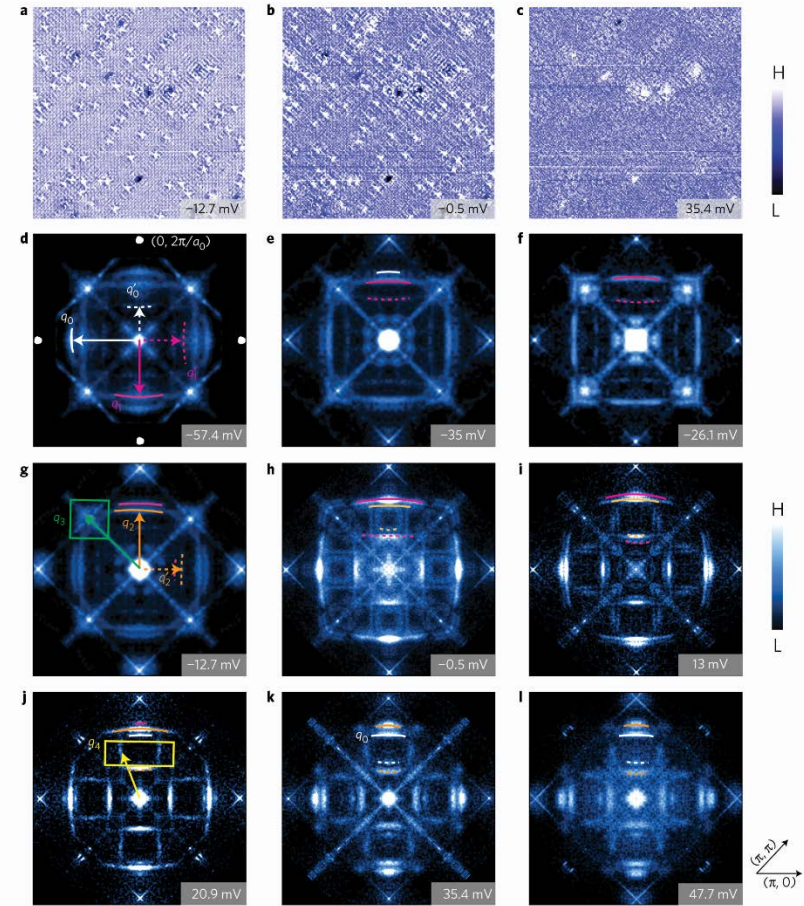
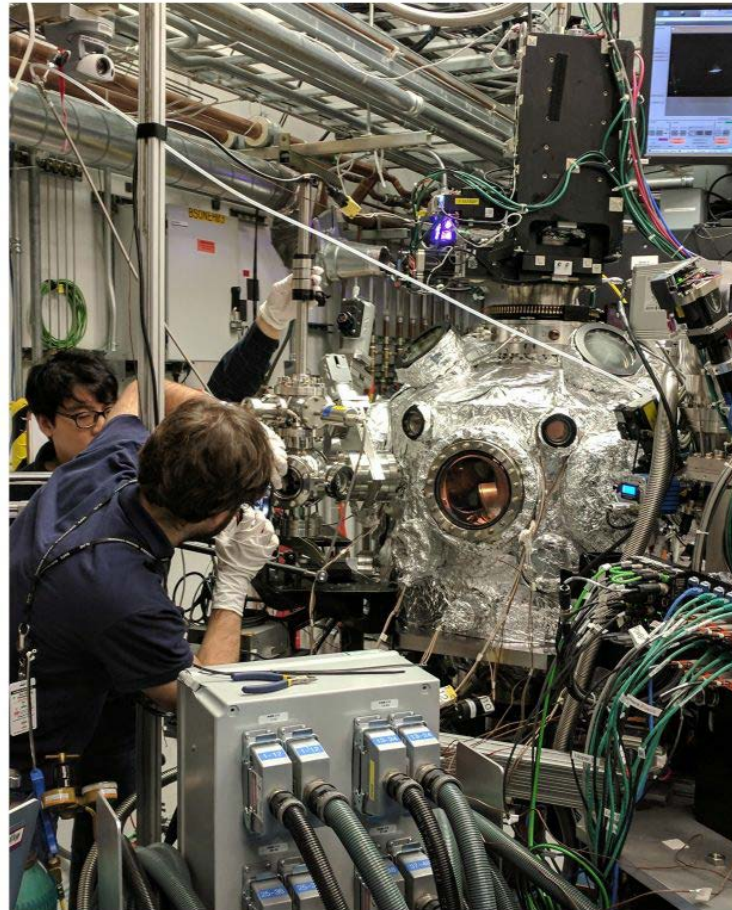
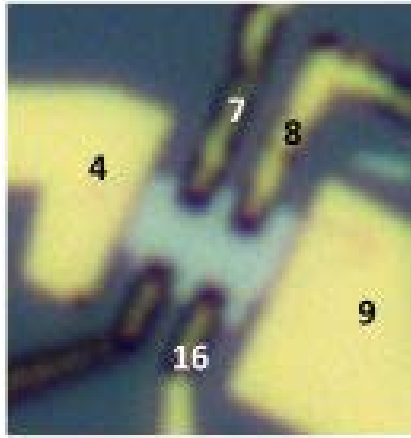
Biological physics

The physics of living things: molecular processes in single cells, quantitative evolution, quantum biology (avian magnetoreception)...



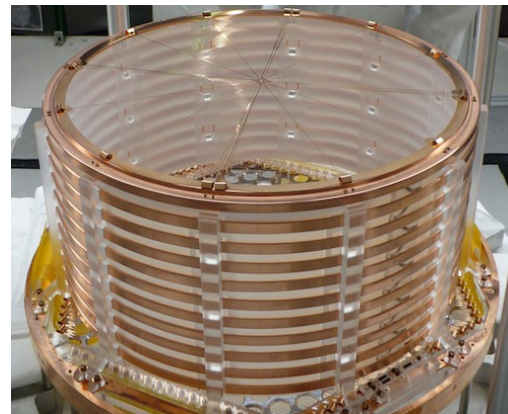
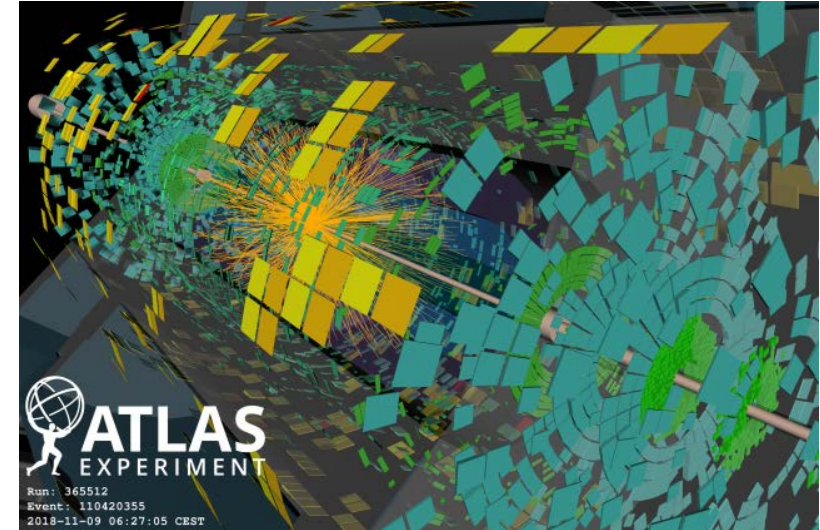
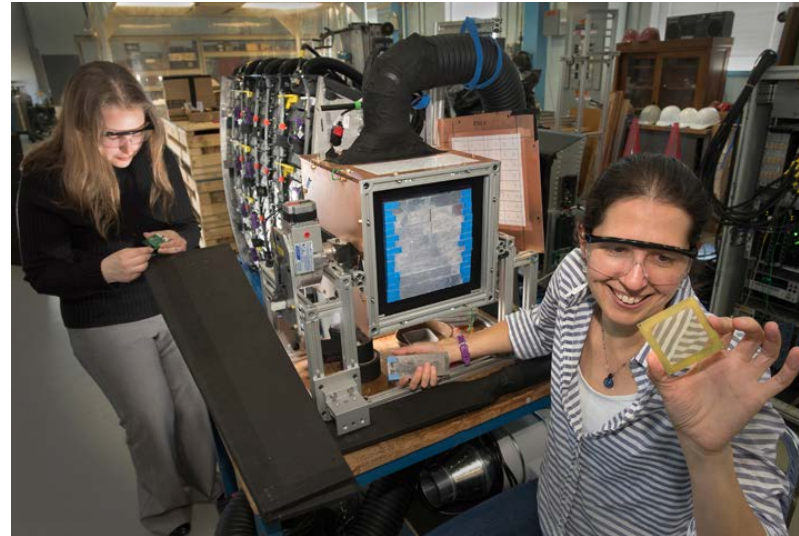
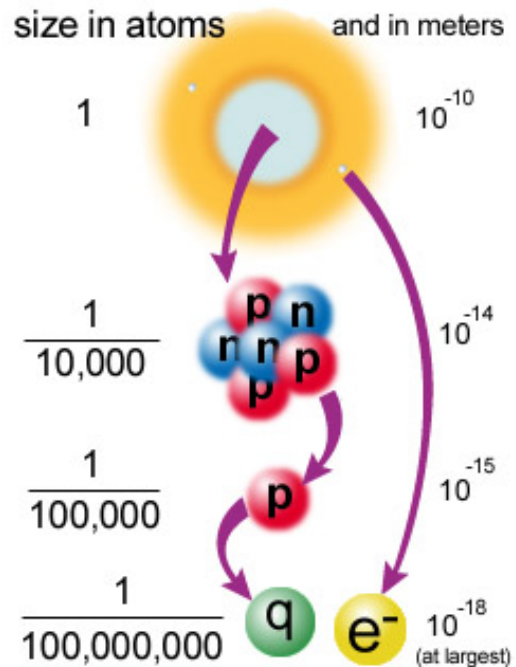
Condensed Matter Physics

Properties of materials and collections of particles: superconductors, gas giants, carbon nanotubes, graphene, topological insulators, ...



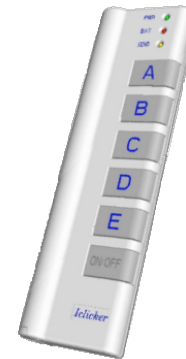
High Energy / Nuclear Physics

Studying nature at its smallest level: fundamental forces, quark-gluon plasma, double-beta decay, new particles (Higgs), ...



Physics Education Research

The science of teaching physics!



Friday, September 5 | 1:12 PM | mats@illinois.edu | account | log off

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Instructor Links | Administrator Links | Instructor | Student Selen, Mats

[+] Go to current unit

Electricity Edit Title

1. Coulomb's Law
2. Electric Fields
3. Electric Flux and Field Lines
4. Gauss Law
5. Electric Potential Energy
6. Electric Potential
7. Conductors and Capacitance

+ DC Circuits

+ Magnetism

+ AC Circuits

+ Light and Optics

+ Exam Review Solutions

Daily Planner

Tuesday, September 9

- 8:00 am Homework - Electric Flux And Field Lines
- 8:00 am Prelecture - Electric Potential Energy
- 8:00 am Checkpoint - Electric Potential Energy

Thursday, September 11

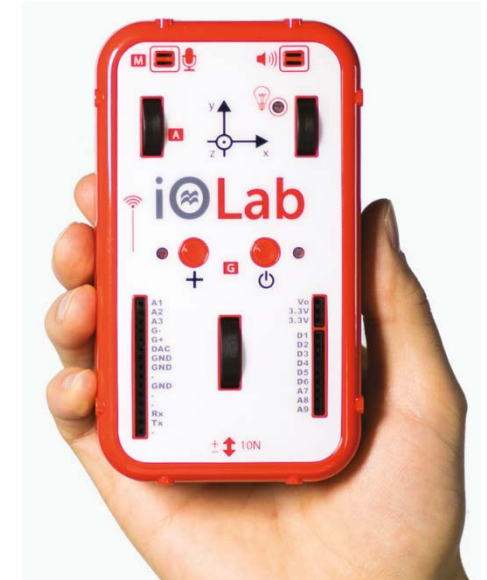
- 8:00 am Prelecture - Electric Potential
- 8:00 am Checkpoint - Electric Potential

Tuesday, September 16

- 8:00 am Homework - Electric Potential Energy
- 8:00 am Prelecture - Conductors And Capacitance
- 8:00 am Checkpoint - Conductors And

Announcements

[Add Announcement](#)

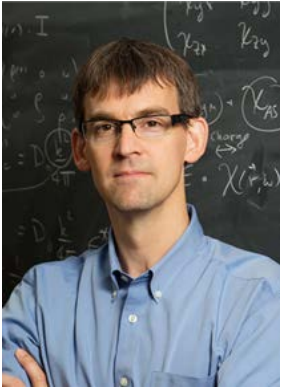


iClicker Question: When should I get involved in research as an undergrad?

- A. Only during junior or senior year
- B. Only if planning to apply to graduate school
- C. Only if able to work in the same lab multiple years
- D. None of the above**
- E. All of the above



Faculty Panel



Peter Abbamonte

Condensed
Matter
Experiment



Yann Chemla

Biological
Physics
Experiment



Eugene Colla

Condensed
Matter
Experiment



Paul Kwiat

AMO & QIS
Experiment



Anne Sickles

Nuclear
Physics
Experiment

Some resources

Research Groups & Centers – information hub on Illinois Physics research, faculty pages:

<https://physics.illinois.edu/research/groups-and-centers>

Undergraduate Research Readiness Portal (URRP) – seeking research opportunities, uploading CVs, and applying to work:

<https://physics.illinois.edu/academics/undergraduates>

SPS events (e.g. Undergraduate Research Symposium)

Emails from Associate Head (me) and others on research opportunities