Segré Internships for summer 2018

June 11th through August 6th

Stipend: $4,500

Students are invited to apply for the Segrè Internship, to be awarded to undergraduate or graduate students who have taught in, completed or are completing the 111-Advanced Laboratory course. Interns will use research techniques as they collaborate with faculty and staff to improve experiments and develop new ones. Working in the 111-Lab 8 hours a day for eight (8) weeks. This benefits students with work experience and job references for Graduate school.

Responsibilities include:

- Researching underlying physics of the experiments
- Participating in building and repairing apparatus
- Hand annotating/sketching
- Drawing with Adobe Illustrator
- Programming computers to acquire data and control experiments,
- Testing and trouble-shooting experiments
- Improving the write-ups for the experiments.

Planned projects list for summer 2018: (not in any order)

1. Testing old and new hardware for experiments
2. Checking and fixing LabVIEW programs to work with new version of LabVIEW software
3. Drafting diagrams of Experimentation Lab equipment and adding details to existing diagrams
4. Updating diagrams in write-ups, changing corresponding wording in the text
5. Get the Beta Ray experiment working with Cs-137 or Sr-90, upgrade source to meet learning objectives
6. Develop plans for proposed NV Centers and CMBR experiments
7. TBD

This award is provided in memory of Emilio Segrè (1905-1989).

Born in 1905, Segrè was the first student to earn his doctoral degree under the sponsorship of Italian physicist Enrico Fermi, his friend and collaborator for more than three decades. Upon immigrating to this country in 1938 (he later became an U.S. citizen), Segrè accepted a position at the University of California, Berkeley. There, he commenced one of his most productive periods in nuclear physics, working with Glenn Seaborg, a chemistry professor, on methods of separating nuclear isomers. In the period following World War II, the antiproton, an atomic particle that sought to prove nature's symmetry still eluded scientists. In 1955, using Berkeley's powerful new cyclotron, Owen Chamberlain and Emilio Segrè made the first observation of the anti-proton. This discovery signaled a major leap in the study of matter and antimatter. Emilio G. Segrè received the Nobel Prize in 1959 for his work with Anti-Protons.

The Physics Department gratefully acknowledges the generous gifts of Douglas C. Giancoli that have made this internship possible.

UNIVERSITY OF CALIFORNIA at BERKELEY DEPARTMENT OF PHYSICS

Application for summer 2018 Segré Internship

Last Name _____First Name _____ Initial ____

Home Address:_____

E-mail address:_____ Birthdate: ___/___/___

Phones: Cell (_____) _____ Home (_____)_____ Campus _____

SID# _____ CalNet Login Name:_____

Student Status: Undergraduate ____ Graduate ___ Major _____

Do you currently hold a fellowship? No ____ Yes ____ Title: _____

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Have you now or ever, during your attendance at UC Berkeley, received any kind of financial aid Yes/ No _____

If yes you must contact the Financial Aid Office (124 Sproul Hall) at UC Berkeley and check to see how this stipend may affect your financial aid money.

Submit this application to Winthrop Williams AFTER you have done so:_____

I have checked with Financial Aid Office Yes/ No _____ Your Signature _____

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111 Lab Experience: Semester completed 111A BSC: _____

Semester completed 111B Advanced: _____

What was your 111A BSC Final Project: (If you need more space add sheets) Did it work? Y/N _____ explain

111B ADV Experiments performed: Atom Trapping (MOT), Nuclear Magnetic Resonance (NMR), Optical Pumping (OPT), Compton Scattering (COM), Atomic Physics (ATM), Non-Linear Dynamics (NLD), Quantum Entanglement (QIE), Muon Lifetime (MUO), Josephson Effect (JOS), Atomic Force Microscope (AFM), Hall Effect in a Plasma (HAL), Optical Tweezer (OTZ), Low Light Signals (LLS), Brownian Motion in Cells (BMC), Hall Effect In a Semiconductor (SHE), Gamma Ray (GMA), CO2 Laser (CO2), Rutherford(RUT)

Other relevant coursework:

Other lab/research experience:

Programming experience/knowledge/languages:

Shop and Tools experience (work with hand tools, soldering electronic circuits, etc):

Please attach a sample of your schematic drawing or mechanical sketching, by hand is best, or by computer.

Please also attach resumé describing work experience.

Submit completed application to: **Winthrop Williams** (office 282E LeConte , mailbox 366 LeConte) winthrop@berkeley.edu (Subject line = SEGRE111LAB); ***Closing date: Friday, May 4, 2018***