

I: All attachments and certificates

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B: Curriculum vitae

Figure B.1: California Institute of Technology, B.S. in Physics, 2012.



Figure B.2: University of Chicago, Ph.D. in Physics, 2018.

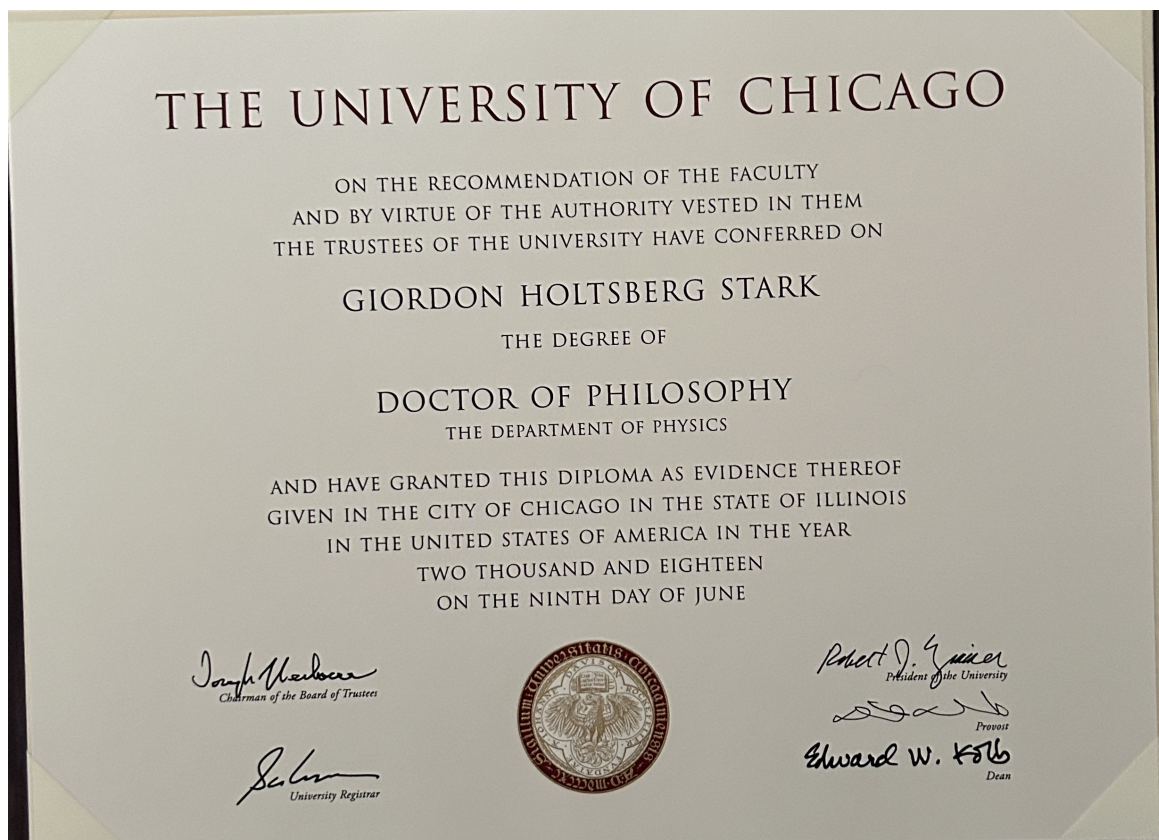


Figure B.3: CERN: Fellow contract



European Organization for Nuclear Research
Organisation européenne pour la recherche nucléaire

CERN
 HR Department
 CH 1211 GENEVA 23

Tel. direct: + 41 22 767 4471
 Email: Katharine.Chevieux.Thomas@cern.ch

Mr. Giordon STARK
 1450 EAST 55TH PLACE
 #721S
 US - 60637 CHICAGO

PID: 756182

Organic Unit: **EP-DI** 21.06.2018

EMPLOYMENT CONTRACT

Personal-Confidential

On behalf of the Director-General of the European Organization for Nuclear Research, I am pleased to offer you an employment contract on the following conditions:

Category	: Fellow
Duration of the appointment	: 01.08.2018 - 31.07.2020
Duty station	: Geneva, Switzerland
Home station	: Aberdeen, GB
Special conditions	: -

Monthly stipend	: Swiss francs 7039.-
------------------------	------------------------------

Your contributions to the Pension Fund and to the Health Insurance Scheme will be deducted from the above stipend.

This contract is subject to the provisions of the Staff Rules and Regulations, in particular to Article R II 1.11, as well as to all other relevant official instructions.

The Staff Rules and Regulations are available on CERN intranet.

The above conditions are based on the information you have supplied to CERN. Any change in your personal, professional or financial circumstances affecting these conditions must be notified in writing to the Human Resources Department immediately.



for Head,
Human Resources Department

I accept this contract and the conditions mentioned above.
 (Please sign, date and send to: hr.contracts@cern.ch)

I will be able to start working on:

Signature:

Date:

D: Research qualifications portfolio

Figure D.1: DOE-SCGSR: Letter of Appointment

DOE Office of Science Graduate Student Research Program



U.S. DEPARTMENT OF
ENERGY

Office of
Science

July 21, 2015

Giordon Stark
1450 East 55th Place, #721S
Chicago, IL 60637

Dear Giordon Stark:

Congratulations on your selection by the U.S. Department of Energy (DOE) Office of Science to receive an Office of Science Graduate Student Research (SCGSR) award. DOE Office of Science partners with the Oak Ridge Institute for Science and Education (ORISE) to administer this program. ORISE is managed by ORAU for the DOE. The terms and conditions of the award are detailed in this *Letter of Appointment* and the *ORISE Terms of Appointment*. Please read through these carefully and follow the instructions below to accept or decline this award offer.

Award Details

Project Title	Boosted object hardware trigger development and testing for the Phase I upgrade of the ATLAS Experiment at Brookhaven National Lab
Host DOE Laboratory	Brookhaven National Laboratory (BNL)
Award Period	10/15/2015 to 1/15/2016
Collaborating DOE Laboratory Scientist	Michael Begel Brookhaven National Laboratory (BNL)
Primary Graduate Thesis Advisor	David Miller University of Chicago

The Award Details shown above are consistent with your submission in the SCGSR online application for the proposed SCGSR project. If there are changes to the start date, collaborating DOE laboratory scientist, primary graduate thesis advisor, or any significant changes to the scope of the SCGSR research proposal, you must immediately contact SCGSR Program Manager, Dr. Ping Ge, at ping.ge@science.doe.gov. Significant changes at this stage may impact your eligibility for an award. If the award start date (i.e. "Proposed Project Period Start Date" in the SCGSR online application) falls on a weekend or holiday, you should report to the Host DOE Laboratory on the next business day.

The following website has been developed in support of awardees in the SCGSR Program:

<http://www.ornl.gov/DOE-SCGSR/forms.html>.

This site will be used as the primary source of communication for program policies, procedures, and forms, including all documents and forms referenced below. The website will be updated as needed to reflect the current SCGSR Program requirements. Awardees are expected to visit this website on a regular basis during the award period to keep abreast of program requirements. This is a private website, and the access



**OAK RIDGE INSTITUTE FOR
SCIENCE AND EDUCATION**
Managed by ORAU for DOE

Figure D.2: **Nathan Sugarman Award:** Excellence in Graduate Student Research. “For his technical contributions and creative insights in the design and prototyping of a new high-speed electronics trigger system for lorentz-boosted massive particles for the ATLAS Experiment.” The Sugarman Award recognizes one of Nathan’s highest priorities: encouraging young scientists. It was both the interdisciplinary research at the Institute, and the education of students, to which he devoted his scholarly life.



Figure D.3: **Springer Thesis Award**: an email from the editor. The series “Springer Theses” brings together a selection of the very best Ph.D. theses from around the world and across the physical sciences. Nominated and endorsed by two recognized specialists, each published volume has been selected for its scientific excellence and the high impact of its contents for the pertinent field of research.

Gmail - Your nomination for the Springer Thesis Awards

<https://mail.google.com/mail/u/0/?ik=6089e61945&view=pt&search=a...>



Giordon Stark <kratsg@gmail.com>

Your nomination for the Springer Thesis Awards

11 messages

Sam Harrison <sam.harrison@springer.com>

Thu, Aug 8, 2019 at 11:30 AM

To: "gstark@cern.ch" <gstark@cern.ch>, "David.W.Miller@uchicago.edu" <David.W.Miller@uchicago.edu>
Cc: "ykkim@hep.uchicago.edu" <ykkim@hep.uchicago.edu>

Dear Dr. Stark and Dr. Miller,

Thank you very much for nominating and supplying the thesis "The Search for Supersymmetry in Hadronic Final States using Boosted Object Reconstruction" for our program [Springer Theses](#). We have now checked the thesis, and are satisfied that it fulfills all the relevant formal and quality criteria for acceptance. We thus congratulate you, Dr. Stark, on your excellent research and its careful documentation, and look forward to awarding you a small prize of 500 USD upon publication.

Before beginning production, we ask that you carry out the following, mainly minor modifications which will improve the readability and accessibility of your work.

Modifications: *Please try to complete these modifications within 6-8 weeks.*

1. The supervisor's foreword, for which we thank Dr. Miller in advance, should be inserted as the first item after the title page and optional dedication (in the same format – e.g. Word or LaTeX – as the thesis manuscript). I can provide a sample foreword if this would be helpful.
2. Please delete the following:
 - lists of tables and figures
 - declaration
 - copyright statement
3. We like all Springer Theses to contain fairly substantial introductions that serve to give newcomers – e.g. beginning PhD students – access to the research reported. We consider that your introductory material already meets this criteria, but please check once more that it defines all technical terms adequately and gives sufficient reference to introductory literature (reviews and possibly even textbooks). Please also check your thesis thoroughly for any spelling and grammar errors that may be present in the document.
4. It is not a problem that many of the results in your thesis may have been published, but we do like to be sure that no more than 30% of the text is reproduced verbatim from papers. Could you please double-check this? Please also add a page to the frontmatter with the title "Parts of this thesis have been published in the following journal articles:" and, underneath, list as a standard reference the articles arising from the thesis.
5. Please be aware that any figures or sizable text sections taken from papers may require permission from the original publisher. Obtaining such permissions is your responsibility, but we are happy to offer some pointers if need be. If a figure is reproduced from another source, it is usually necessary to include a full citation (author(s), title, journal, etc.) in the figure caption as a condition of its reuse.
6. References: Since the eBook will be offered for download as separate chapters, each with its own DOI, it will be necessary to place the relevant references at the end of each chapter, rather than having a single separate bibliography. This reorganization can be done by our typesetters, but – in order to save yourself proof-reading effort later – you may prefer to reorganize the references yourself before submitting the final version. This would also help us shorten the publication schedule and fast-track the publication of your thesis.
7. If your thesis contains an abstract, either remove it or merge it with the introduction.
8. We are happy to include your CV, with or without a photo, at the end of the book. If you choose to do this, please ensure that your CV is up-to-date and make your list of publications into a subsection thereof.
9. You have the option of including an index section, if you wish. You may either supply a list of keywords (which we will use to create an index), or create the index directly in your LaTeX files (if applicable).

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5/26/24, 8:49 AM

Figure D.4: **UCSC Outstanding Postdoctoral Fellow Award:** an email from the Graduate Division Outstanding Postdoctoral Fellow selection committee.

Gmail - Congratulations - UCSC Outstanding Postdoc Awardee!

<https://mail.google.com/mail/u/0/?ik=6089e61945&view=pt&search=a...>



Giordon Stark <kratsg@gmail.com>

Congratulations - UCSC Outstanding Postdoc Awardee!

4 messages

Donald Smith <drsmith@ucsc.edu>

Mon, May 9, 2022 at 4:00 PM

To: gistark@ucsc.edu

Cc: Sonya Newlyn <snewlyn@ucsc.edu>, Peter Biehl <pbiehl@ucsc.edu>, Gerrald Lodewijk <gjlodewi@ucsc.edu>, uspa@ucsc.edu, Stephanie Casher <scasher@ucsc.edu>

Hi Giordon,

The Graduate Division Outstanding Postdoctoral Fellow selection committee received many highly qualified nominations for recognition, and I write on behalf of the Graduate Division to inform and congratulate you in your selection as an Outstanding Postdoctoral Fellow awardee for 2021-22! This important recognition comes with \$1500 and a specially engraved AnnieGlass platinum-bordered tray!

The USPA will announce the awardees at their annual symposium on May 24th (<https://uspa.ucsc.edu/symposium/>). We hope you plan to attend so you can receive the award in person. We If you are unable to attend the symposium, please let us and the USPA (cc'd) know.

The \$1500 prize may be used toward professional development during your postdoctoral staff position at UCSC. Such expenses may include travel, accommodation, and fees to attend professional development conferences, workshops, classes, seminar, other training, lab equipment, etc. To use the funds, please submit requests to Sonya Newlyn (cc'd).

Best regards,

don

~~~~~

Don Smith, PhD

Associate Dean of Graduate Studies and Postdoctoral Affairs

Distinguished Professor, Microbiology and Environmental Toxicology

University of California

Santa Cruz, CA 95064

(831) 459-5041

<http://www.metx.ucsc.edu/>

1 of 2

5/26/24, 8:50 AM

Figure D.5: **US-ATLAS Outstanding Graduate Student Award**: “In recognition of your exceptionally broad and noteworthy contributions to the ATLAS experiment. In particular, we recognize your critical contributions to the electronics design and prototyping for a new high-speed trigger electronics system for the Phase 1 upgrade, software development, leadership in the creation of a new method to search for Supersymmetry, and software education.”

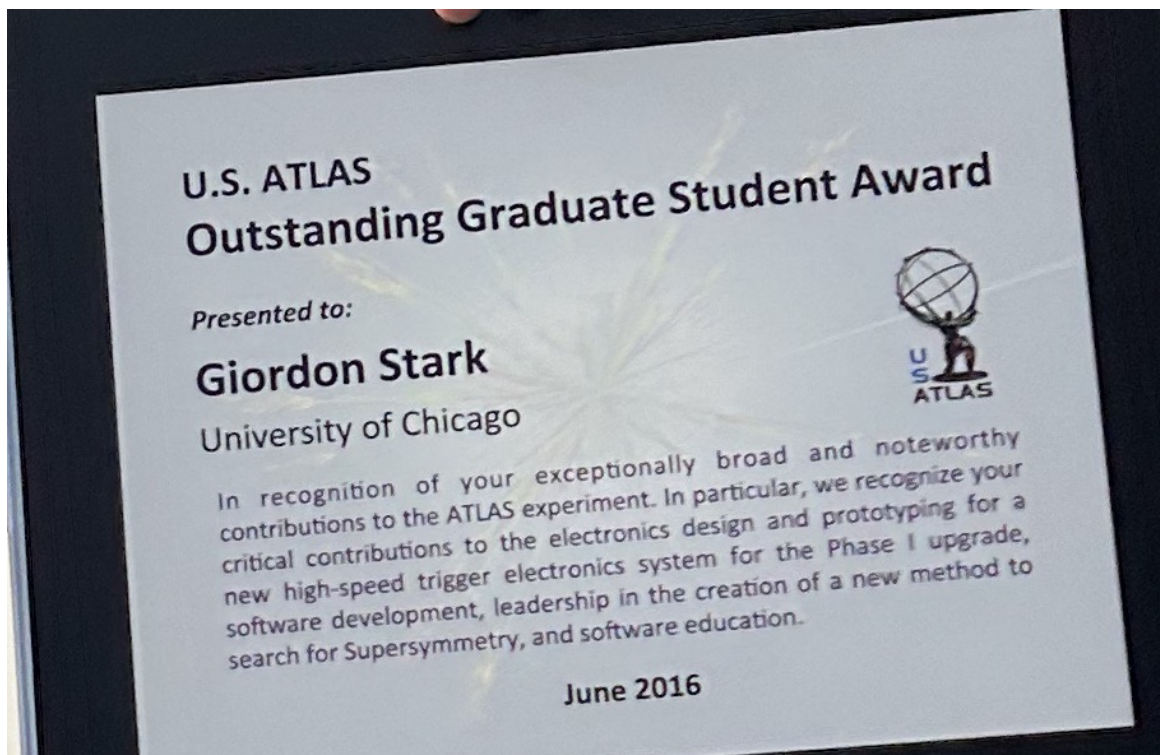


Figure D.6: **Young Researchers' Symposium Award:** outstanding poster presentation.

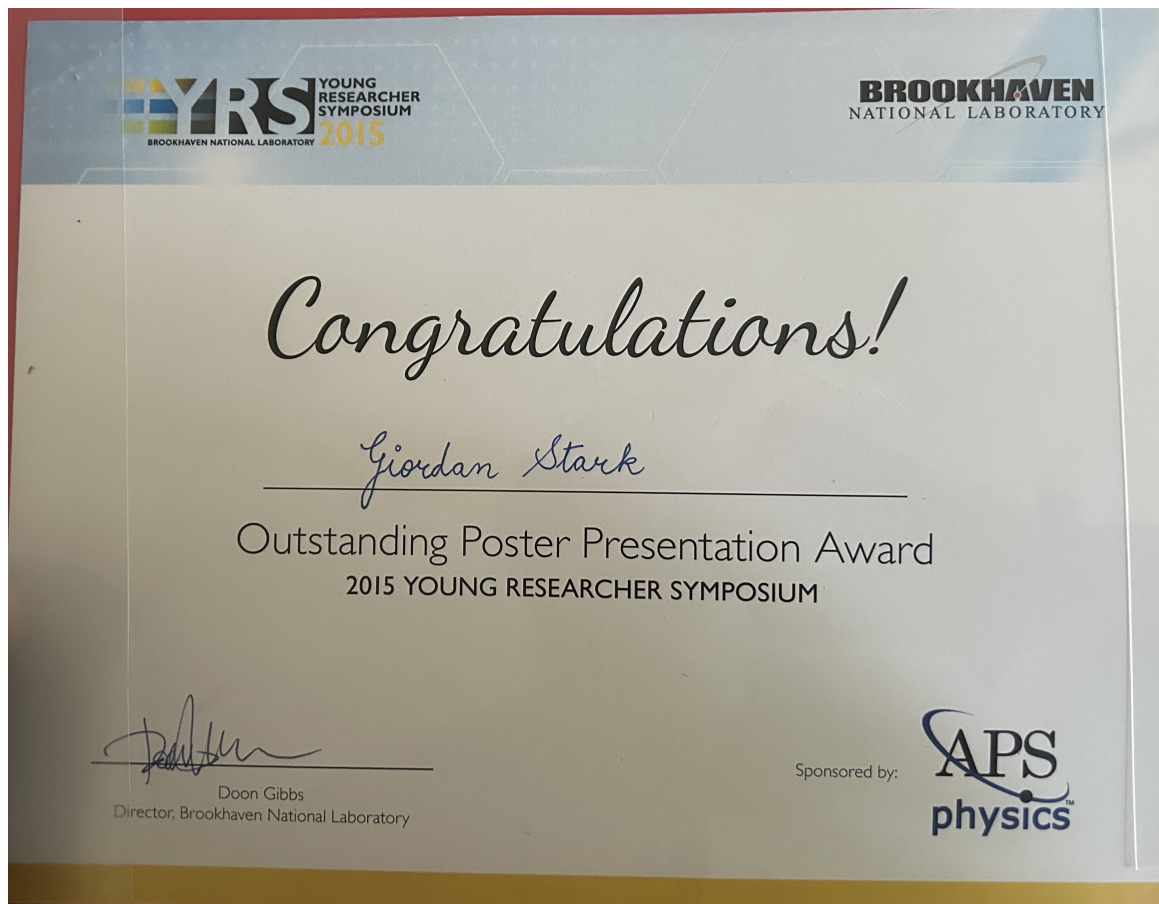


Figure D.7: **US LHC Users' Association Award:** outstanding lightning talk. This is an email from an organizer for the "DC Policy Trip". The awardees are invited to participate in an outreach / policy formation trip to Washington D.C. to meet with members of Senate and Congress to advocate for the messaging in the APS P5 2013 report.

Gmail - plans for HEP visit to DC

<https://mail.google.com/mail/u/0/?ik=6089e61945&view=pt&search=a...>



Giordon Stark <kratsg@gmail.com>

## plans for HEP visit to DC

14 messages

Ken Bloom <kenbloom@unl.edu>

Fri, Dec 19, 2014 at 12:18 PM

To: "kratsg@uchicago.edu" <kratsg@uchicago.edu>, "ahard@cern.ch" <ahard@cern.ch>, "BarakGrubergCazon@creighton.edu" <BarakGrubergCazon@creighton.edu>, "megan.elizabeth.connors@cern.ch" <megan.elizabeth.connors@cern.ch>, Dominick Olivito <dominick.olivito@gmail.com>, "phchang@cern.ch" <phchang@cern.ch>, "marc.gabriel.weinberg@cern.ch" <marc.gabriel.weinberg@cern.ch>, "hlli@uchicago.edu" <hlli@uchicago.edu>, "jessica.metcalfe@gmail.com" <jessica.metcalfe@gmail.com>, "souvik1982@gmail.com" <souvik1982@gmail.com>  
Cc: Harvey Newman <newman@hep.caltech.edu>, Michael Tuts <tuts@nevis.columbia.edu>

Dear colleagues,

Thanks to your successful participation in the US LUA lightning talks, we are happy to invite you participate in the annual visit of HEP users to Washington, DC, which will take place during March 24-27. The US LUA will be able to offer each of you \$1000 in support of your expenses for this visit. As per Harvey's email below, this is a critical time to make clear to our elected representatives the importance of our science and the excellent quality of the scientists working in the field.

There are already efforts underway to get people scheduled for appointments on Capitol Hill. See details below on the information that is needed to help schedule your visit for maximum impact; it requires preparing some files in a proper format and sending them on to the trip organizers (as soon as you can).

If you will be going on the trip, please let me, Harvey and Mike know. Thanks, best wishes.

Ken

Begin forwarded message:

**Date:** December 18, 2014 at 9:16:27 AM CST

**From:** Harvey Newman <newman@hep.caltech.edu>

**To:** "uslucc@USLUO.ORG" <uslucc@USLUO.ORG>

**Subject:** Fwd: [Fwd: Primary Assignments for DC visit - Its that time again!]

Dear Colleagues,

I hope many of you are planning to come to the annual HEP trip to Washington DC this year.

For those of you who do not already know, the final FY 2015 bill allocated \$ 10M less than what was previously agreed, namely \$ 766M, for HEP. In order to make room for projects, significant cuts of 5-6% are foreseen to research. We need all we can, to do better.

In the present climate, after the P5 report, we can still hope for better budgets in 2016 and 2017; but only if we pitch in and work towards this goal. The visit to DC each year is a very important part of it.

So-

1 of 7

5/26/24, 9:19 AM

Figure D.8: **Edward C. and Alice Stone Summer Undergraduate Research Fellow**: research fellowship. This is an email from the coordinator of the fellowship program. This fellowship supported my research on Submillimeter Wave Observatories.

Gmail - Named SURF Thank You Note Writing Party

<https://mail.google.com/mail/u/0/?ik=6089e61945&view=pt&search=a...>



Giordon Stark <kratsg@gmail.com>

---

**Named SURF Thank You Note Writing Party**

2 messages

---

**Carol Casey** <casey@its.caltech.edu>  
To: kratsg@caltech.edu

Mon, Jul 19, 2010 at 2:13 PM

Hi, Giordon,

Congratulations! You have been selected as a named SURF. Your named SURF title is:

Edward C. and Alice Stone SURF Fellow

Funds generously contributed by this donor (along with financial support from faculty) allow SURF to support our students, your project, and our summer programming. SURF donors have greatly supported students at Caltech and always enjoy connecting with the student named in their honor, and it is important to acknowledge the donors' generosity. To express your gratitude, it is important that you handwrite a thank you note.

We will be holding a "Thank You Note Writing" party on Wednesday, July 21, at 1:30 pm in Winnett Lounge. Please be on time. At the party we will have information about your donor and will supply note cards, pens, and snacks.

While it is not necessary to you write the note at the party, we highly suggest that you do. If you do not write your thank you at the party, please deliver the handwritten note to the Student-Faculty Programs Office no later than July 30. If you wish, you may write a longer letter on a computer to be included with your handwritten note. Once submitted, we will make a copy of your note for our records and send the note to the donor. We cannot release donor addresses directly to you.

Also, please acknowledge your named SURF donor in all papers and presentations related to your project.

We look forward to seeing you on Wednesday! (If you are doing your project off campus, let me know and I will forward you your named SURF information.)

Carol

---

**Casey, Carol S** <casey@caltech.edu>  
To: Giordon <kratsg@aol.com>

Wed, Jul 21, 2010 at 4:59 PM

Hi, Giordon,

Your mentor can help you with this, but we've seen things like "Support for this project was provided by the Edward C. and Alice Stone SURF Fellowship."

Hope that helps!

Carol

Carol Casey  
Associate Director  
Student-Faculty Programs  
California Institute of Technology  
Mail Code 330-87  
Pasadena, CA 91125

1 of 2

5/26/24, 9:38 AM



## E: Teaching qualifications portfolio

I have scanned copies of written notes, as well as digital versions of various notes for discussion sections I led, as well as training notes for lab courses and classes I taught or led at Caltech and University of Chicago. In addition, there are training materials for workshops, bootcamps, and tutorials I organized / instructed for publicly available on the web (and continuously maintained / updated over time). There is a lot of material, and I am able to provide specific materials upon request. Below is a highlight / overview of the breadth.

- Example ATLAS qualification project description
- Example of notes for a discussion section
- Caltech Student Instructor Courses (Web Programming)
- Syllabus from a Caltech Student Instructor Course (Web Programming)
- Caltech TA Award
- UChicago TA Evaluations
- Caltech TA Evaluation

### Example ATLAS qualification projects description

STUDENT will develop a software package to perform statistical data analysis on data from ITk Pixel Module QC results for pre-production, with a focus on the electrical testing portions. This package will be developed in python, documented, and use Git version-control. GitLab at CERN will be used to host the package in the ITk Pixel Module group (<https://gitlab.cern.ch/atlas-itk/pixel/module>). The project will rely on existing work, itkdb (<https://itkdb.docs.cern.ch/>), for all interactions with the ATLAS ITk Production Database. The package will be a collection of different types of data analysis on the ITk Pixel Module QC results, each with its own configuration that can also be serialized using JSON. This configuration will have two parts described below. The first part is about the dataset of interest; describing which modules to include and which data linked to them to perform the analysis. The second part is about the processing of the datasets; describing the analysis to execute and registering the outputs to be saved. The deliverables of the software will be to analyse the distribution of a given QC measurement across modules of various origins and across multiple QC stages. It should also be able to investigate standard reporting such as the observed yield, e.g., by identifying the parameters of the quality control that have the strongest impact. The work will be documented both in the GitLab project as well as within an internal note. Regular progress reports will be made in the ATLAS ITk Pixel Module meetings.

– *written for a Physics PhD student at Saclay CEA, with myself as technical supervisor*

This technical project deals with the development and implementation of QA/QC procedures for the ATLAS ITk Pixel On-Detector Services. All of the institutes working with Type-1 electrical services have acquired Cirris cable tester units, but these units do not have the software interface needed for testing or uploading results to the ITk production databases. The deliverable for this project is the common software framework and standard operating procedures needed to integrate the Cirris cable testers into the ITk pixel QA/QC workflow. The project comprises the following 3 main components: 1. Test definition. In collaboration with the Type-1 institutions, develop the test definition, including Cirris configuration files, pin mapping definitions, and translation to Cirris language (Lua programming language).

2. Output parsing/transformation. Parse raw output to prepare summary tables for operators, perhaps even a graphical representation/mapping for easier interpretation and for documentation. 3. Interface with global production database. Working with Type-1 and database experts, preparing the JSON file, checking results graphically (see #2 above), and using ITkDB interface to upload the results to the production database. At the moment, the local DB for the services is not uniformly defined, so the task focuses on the global production DB instead. The progress on this task will be monitored in the ITk Pixel Electronics meeting and the Production Database meetings. It will be summarized at the end in an ATLAS note.

– *written for a Physics PhD student at UCSC, with myself as local supervisor*

|                   |                |               |
|-------------------|----------------|---------------|
| Phys 121 Lab      | Hints and Help | Fall 2012     |
| November 12, 2012 |                | Giordon Stark |

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Discussion notes I wrote up for a lab course at UChicago (PHY121, Week 5)

## 1 Introduction and Review

This week's lab is back to rotational motion. We'll be extending our study of Newton's Second Law

$$\sum F = ma$$

into rotational dynamics.

### 1.1 Lab Notebooks / Write ups

Make sure the following are covered in your write ups

- numbers are reported with units where possible (except for fractionals)
- measurements are reported with standard deviation ( $g = 9.8 \pm 0.01 \text{ m/s}^2$ )
- tables of numbers are labeled, the columns are appropriately labeled and boxed to separate it from the rest of the scribbles you might have on the page
- plots are titled, axes labeled with variable and units
- all fits performed on plots must report the results of said fits along with the plots
- sections are divided clearly, non-obvious calculations are shown by specifying what you're doing to calculate a number (e.g. "Take these values ... and plug into equation ...")
- for those using carbon-copy, make sure your writing is clearly visible on the carbon-copy before turning it in and fix it if it's not (e.g. write harder)

## 2 Last Week's Lab

Last week's lab was a discussion on elastic collisions, inelastic collisions, and explosions. Let's review what we should have learned:

### 2.1 Explosions

Kinetic Energy is not conserved. Momentum is conserved. This is evident from initial and final states:

$$E_i = 0 \quad E_f = \frac{1}{2}m_1v_1^2 + \frac{1}{2}m_2v_2^2$$

and momentum

$$p_i = 0 \quad p_f = m_1v_1 + m_2v_2$$

Where does the energy come from? It's the energy stored in the rubber band! You should have seen that momentum is conserved meaning that  $p_i = p_f$ . It should be quite clear, since energy is a scalar, that kinetic energy is not conserved (something positive plus something positive can not equal zero).

## 2.2 Elastic Collisions

Kinetic Energy is conserved. Momentum is conserved. We had one mass originally at rest. Our initial and final states are:

$$E_i = \frac{1}{2}m_1v_i^2 \quad E_f = \frac{1}{2}m_1v_1^2 + \frac{1}{2}m_2v_2^2$$

and momentum

$$p_i = m_1v_i \quad p_f = m_1v_1 + m_2v_2$$

This is not as obvious. One can (and should) show that these quantities are conserved by measuring initial and final states and showing that these equal.

## 2.3 Inelastic Collision

Kinetic Energy is not conserved. Momentum is conserved. We had one mass originally at rest, and the two masses collide and stick and move together. Our initial and final states are

$$E_i = \frac{1}{2}m_1v_i^2 \quad E_f = \frac{1}{2}(m_1 + m_2)v_f^2$$

and momentum

$$p_i = m_1v_i \quad p_f = (m_1 + m_2)v_f$$

Where does our extra energy go here? It goes into sticking the two masses together. How much energy did we lose?

$$E_{loss} = E_i - E_f = \frac{1}{2}m_1v_i^2 - \frac{1}{2}(m_1 + m_2)v_f^2$$

From conservation of momentum, we know that  $v_f = \frac{m_1}{m_1 + m_2}v_i$ . You can substitute this in and simplify the  $E_{loss}$  in terms of the masses  $m_1, m_2$  and the initial velocity  $v_i$ .



### 3 Rotational Dynamics

Instead of doing a section-by-section summary. We'll have a brief discussion about different fundamental ideas to impart from this lab. I assume, if you're reading this, that you're somewhat familiar with the lab manual's write up here.

#### 3.1 Tension approximation

We can show the tension formula in equation (20) by discussing Newton's 2nd Laws rather briefly. Realize that we need to make some assumptions here. The first is  $a = \alpha r$ . We make this assumption because of the string connecting the acceleration of the small mass to the rotation of the disc. We also assume that the rope/string does not slip as it is accelerating / rotating. Therefore, from a free-body diagram on the hanging mass:

$$\sum F = ma = mg - T$$

where the acceleration  $a$  is in the direction of gravity (or pointing away from the spinning disc). Applying the law again on the rotational dynamics of the spinning disc:

$$\sum \tau = I\alpha = Tr$$

where  $I$  is the moment of inertia of the disc of radius  $R$  which is  $\frac{1}{2}MR^2$  ( $M$  is the mass of the disc). Combine these equations together to show:

$$m\alpha r = mg - T \quad I\alpha = Tr$$

$$\rightarrow T = mg \frac{I}{I + mr^2} \quad \alpha = mg \frac{r}{I + mr^2}$$

We can make the approximation  $T \approx mg$  as long as  $I = \frac{1}{2}MR^2 \gg mr^2$ . We can judge how strong our approximation is by computing

$$\% \text{strength} = 1 - \frac{mr^2}{I} = 1 - \frac{2mr^2}{MR^2}$$

#### 3.2 Angles, Rotation, and Distances

There is a very awesome formula to calculate the arclength of an arc radius  $r$  subtended through an angle  $\theta$ :

$$s = r\theta$$

Convince yourself that if  $\theta = 2\pi$  (or a circle), that we have the formula for the circumference of a circle.

### 3.3 Conservation of Energy

As  $m$  falls to the floor, the potential energy it starts with is converted into kinetic energy of the mass and rotational energy of the disc:

$$mgh = \frac{1}{2}mv^2 + \frac{1}{2}I\omega^2$$

To show that this holds (or not), we simply need to show that each side equals each other. You know the initial state here  $mgh$  since you measure that, so you know  $E_i = mgh$ . Now, how do we get  $E_f$ ? We know that the velocity of the mass is related to  $\omega r$ , and we know  $\omega$  from the computer measurement, and  $r$  from our measurement. So we can write the final energy (at the point which the block hits the ground):

$$E_i = mgh$$

$$\begin{aligned} E_f &= \frac{1}{2}m(\omega r)^2 + \frac{1}{2}\left(\frac{1}{2}MR^2\right)\omega^2 \\ &= \frac{1}{2}\left(\frac{1}{2}MR^2 + mr^2\right)\omega^2 \end{aligned}$$

We know  $M, m, R, r, g, h, \omega$  so we can show that our calculated  $E_i$  equals our calculated  $E_f$ .

**Pa/CS 70 Introduction to Web Programming**

**Winter 2011**

## Syllabus

November 2, 2011

Giordon Stark

### Course Description

Being able to build and maintain a website has been an increasingly interdisciplinary skill. This course will introduce the fundamental languages of the web today - including HTML5, CSS3, PHP5, and powerful JavaScript libraries. Students will learn the semantics of a web page and how to abstract information in a universal form on the web with HTML5. They will learn how to make things "pretty" and presentable using CSS3. And finally - interactivity and user-personalization will be added using JavaScript and PHP. By the end of the course, students will understand: the fundamental cross-browser issues that inhibit the progress of web technology as we know it, the ideas behind a well-designed interactive website for the Google Chrome and Mozilla Firefox browsers, and the tools needed to continue learning.

### Homework and Projects

To pass the course, the students will need to complete several short assignments to demonstrate their ability to think critically about designing websites. There will be a few short projects in the first half of the term focusing on major topics such as AJAX, working with jQuery, and making "pretty" layouts [using awesome CSS tricks]. The second half of the term will be focused on a student's own idea for a project that demonstrates the use of modern web technology. Each assignment will have a challenge question requiring analytic thought and the final project should display a greater understanding of the concepts covered in the class.

### Grading

Each student will be responsible for attending all lectures, completing all homework assignments, and demonstrating significant improvement since the beginning of the term. Each student will need to have a laptop for class as well as knowledge of how to SSH. The first class will be an organizational meeting which will determine when the class will be offered for the rest of the term, providing students access to a UGCS account, accessing a list of software that will be useful for the last few weeks of class, and getting a basic introduction to HTML4. All information for the class will be provided on the instructor's website: <http://www.ugcs.caltech.edu/~kratsg>.

Syllabus for one of the two Web Programming courses I taught at Caltech

### **Instructor**

Giordon Stark would be the instructor for the class and would be ultimately responsible for the formulation of the assignments and lessons, as well as teaching the class. Giordon is self-taught in web programming, with more than 8 years of experience, and can program in HTML, CSS, JavaScript, PHP, SQL, XHTML, XML and has experience with concepts in AJAX and DHTML. He has worked on several projects (such as Neopets), dealing with frameworks, security, and database management and optimization, and has won the CS/EE 144 Rankmaniac 2011 web competition. He is a Health and Safety Instructor (instructing for over 9000 hours) with the American Red Cross in teaching classes such as: CPR/First Aid/AED, Basic Aid Training, HIV/AIDS Peer Education, and Basic Instructor Training.

### **Teaching Assistant**

There will be a TA handpicked by Giordon who has taken the class prior and demonstrated excellent ability and would be responsible for monitoring each student's progress in the course, notifying the sponsor of the course's status, collaborating with Giordon to make improvements on the class lectures and in-class problem sets, and otherwise aiding Giordon as a teaching assistant.

### **Lectures**

The class will take about 3 hours each week. For the first half of the term: 1.5 hours devoted to lectures on fundamental ideas behind the web design process; 1.5 hours devoted to homework applying the lecture. The second half of the term will have no more than 45 minutes - 1 hour of lecturing to allow more time for students to work on their projects and receive assistance.

### **Previous Experience**

This class was successfully taught before successfully in the 2009-2010 school year in Spring Term under Pa070c, Section 6. There were 10 students enrolled in the class [the class wasn't publicized by email so enrollment rate was lower than expected]. All the comments from this class have been applied to improve and strengthen the lectures in specific areas of interest. The major point was the introduction of JavaScript libraries and techniques in this class as requested by the students. Finally, the overall goal has shifted from merely learning how to build efficient, pretty websites - to learning the abstract coding languages so one can look up more specific examples and know how to tweak them to fit their purpose - don't reinvent the wheel, just make it better.

### **Tentative Topics by Week**

OM HTML: Learning the (tabled) Layout

1. CSS: Styles and Syntax
2. Advanced CSS: (layered) Display and Presentation
3. jQuery and the Document Object Model
4. PHP: Eloping with `http://www.php.net/`
5. More PHP: Cool Tidbits
6. Even More PHP: Becoming Synchronized using AJAX
7. Begin Project Design
8. Project Development
9. Project Development
10. Project Development

**Class Proposer** Giordon Stark (email: *kratsg*)

**Class Sponsor** Adam Wierman (email: *adamw*)

|                    |                            |
|--------------------|----------------------------|
| Notes              | PHYS225 - Intermediate E&M |
| Lecture 9          |                            |
| January 26th, 2015 | Giordon Stark              |

Contents

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Example of one set of lecture notes I converted over to L<sup>A</sup>T<sub>E</sub>X for Intermediate Electromagnetism

## 1 Overview

### 1.1 Last Time

- Capacitance  $Q = CV$
- Laplace's equation  $\nabla^2 V = 0$
- Method of images

### 1.2 Today

- Review conclusions of the method of images solution to Laplace and induced charge
- Separation of variables
- Wave guides (without the waves)

## 2 Laplace's equation

Recall: we can use **any method** to solve Laplace's equation as long as **the solution satisfies the boundary conditions**.

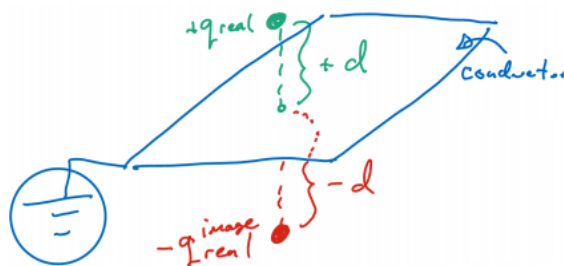


Figure 1: Boundary conditions are  $V(z=0) = 0, V(z=\infty) = 0$

We wrote down the solution as

$$V = \left( \frac{1}{4\pi\epsilon_0} \right) \left[ \frac{+q_{\text{real}}}{(x^2 + y^2 + (z-d)^2)^{1/2}} + \frac{-q_{\text{image}}}{(x^2 + y^2 + (z+d)^2)^{1/2}} \right]$$

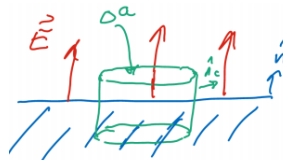
→ But what about the surface itself?

Remember that for a conductor

$$\vec{E}^{\text{surf}} = \frac{\sigma}{\epsilon_0} \hat{n}$$

and therefore:

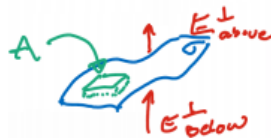
$$-\partial_n V = \frac{\sigma}{\epsilon_0} \rightarrow \sigma = -\epsilon_0 \partial_n V$$





More generally:

$$\oint_S \vec{E} \cdot d\vec{a} = \frac{q_{\text{enc}}}{\epsilon_0} = \frac{\sigma A}{\epsilon_0} \Rightarrow E_{\text{above}}^\perp - E_{\text{below}}^\perp = \frac{\sigma}{\epsilon_0}$$



For our image charge problem, this implies evaluating the partial derivative in the  $\hat{z}$  direction

$$\begin{aligned} \sigma &= -\epsilon_0 \partial_z V|_{z=0} \\ &= -\frac{1}{4\pi} \left[ \frac{-q(z-d)}{(x^2 + y^2 + (z-d)^2)^{3/2}} - \frac{-q(z+d)}{(x^2 + y^2 + (z+d)^2)^{3/2}} \right] \end{aligned}$$

So we end up with total surface charge density

$$\sigma = -\frac{qd}{2\pi} (x^2 + y^2 + d^2)^{-3/2}$$

## 2.1 Boundary Conditions

Taking the above general expression for the surface charge

$$\vec{E}_{\text{above}} - \vec{E}_{\text{below}} = \frac{\sigma}{\epsilon_0} \hat{n}$$

$$(-\partial_n V_{\text{above}}) - (-\partial_n V_{\text{below}}) = \frac{\sigma}{\epsilon_0} \hat{n}$$

$$\partial_n V_{\text{above}} - \partial_n V_{\text{below}} = -\frac{\sigma}{\epsilon_0} \hat{n}$$

with the discontinuity boundary conditions for the surface charge above.

Now, using Stoke's law

$$\oint_C \vec{E} \cdot d\vec{\ell} = \int_S \vec{\nabla} \times \vec{E} \cdot d\vec{a} = 0$$

where  $d\vec{a}$  can either be pointing into or out of the page. We can write down more boundary conditions

$$E_{\text{above}}^\parallel - E_{\text{below}}^\parallel = 0$$

and

$$V_{\text{above}} - V_{\text{below}} = 0$$



### 3 Separation of Variables

Consider what form the solution to

$$\nabla^2 V = 0$$

might take in a Cartesian system where we know how  $V, \sigma$  are constrained on the boundaries (and think back to the expressions that we just derived above)

$$\nabla^2 V = \partial_x^2 V + \partial_y^2 V + \partial_z^2 V = 0$$

Assume for a second that

$$V = V(x, y, z) = f(x)g(y)h(z)$$

But: why would we do this? Because the principle of superposition, coupled with the fact that we will express the solution using a complete set of orthogonal functions that will allow us to extend the solution to complex cases. [Common sets of functions](#)

- Sines and cosines
- Bessel functions
- Hermite polynomials
- Chebyshev polynomials
- Legendre polynomials
- Spherical harmonics

So let's go back to the issue at hand.

$$\nabla^2 V = \partial_x^2 f(gh) + \partial_y^2 (fh) + \partial_z^2 h(fg) = 0$$

Divide through by  $fgh$ :

$$\Rightarrow \frac{1}{f} \partial_x^2 f + \frac{1}{g} \partial_y^2 g + \frac{1}{h} \partial_z^2 h = 0$$

where each of those terms must be constants since they are all canceling each other out. Expanding this out, we find

$$\left. \begin{aligned} \frac{1}{f} \partial_x^2 f &= \alpha^2 \\ \frac{1}{g} \partial_y^2 g &= \beta^2 \\ \frac{1}{h} \partial_z^2 h &= \gamma^2 \end{aligned} \right\} \alpha^2 + \beta^2 = -\gamma^2$$

and this should immediately remind you of an exponential

$$\partial_x(e^{\alpha x}) = \alpha e^{\alpha x} \rightarrow \partial_x^2(e^{\alpha x}) = \alpha^2 e^{\alpha x}$$

As a result, we have

$$f(x) = a_1 e^{\alpha x} + a_2 e^{-\alpha x}$$

$$g(y) = b_1 e^{\beta y} + b_2 e^{-\beta y}$$

$$h(z) = c_1 e^{\gamma z} + c_2 e^{-\gamma z}$$

which means our potential is written as the complete set of orthogonal functions until we apply boundary conditions to simplify it

$$V(x, y, z) = \sum_{\alpha, \beta, \gamma} [a_1 e^{\alpha x} + a_2 e^{-\alpha x}] [b_1 e^{\beta y} + b_2 e^{-\beta y}] [c_1 e^{\gamma z} + c_2 e^{-\gamma z}]$$

### 3.1 Conducting slot

Let's take an explicit example: the conducting slot. This is a rectangular conducting "box" with no lid.

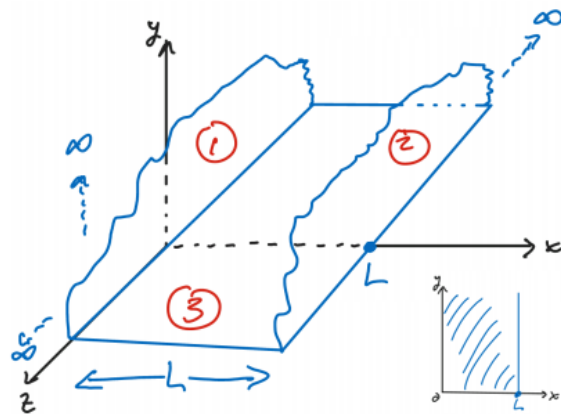
First, let's write down our boundary conditions!

1.  $V(0, y, z) = 0 (x = 0)$
2.  $V(L, y, z) = 0 (x = L)$
3.  $V(x, \infty, z) = 0 (y = \infty)$
4.  $V(x, 0, z) = f(x) (y = 0)$

Note: since infinite in  $z$ , this is really a 2D problem!  $\gamma = 0$

So if we start writing out the general solution here in 2D, we have

$$V(x, y) = \sum_{\alpha^2 + \beta^2 = 0} [A_1 e^{\alpha x} + A_2 e^{-\alpha x}] [b_1 e^{\beta y} + b_2 e^{-\beta y}]$$



where I have implicitly set

$$A_1 = a_1 [c_1(0) + c_2(0)]$$

$$A_2 = a_2 [c_1(0) + c_2(0)]$$

Next, we apply the condition that

$$\alpha^2 + \beta^2 = 0 \Rightarrow \alpha^2 = -\beta^2$$

$$\boxed{\alpha = i\beta}$$

This means our potential is now

$$V(x, y) = \sum_{\beta} \left[ A_1 e^{i\beta x} + A_2 e^{-i\beta x} \right] \left[ b_1 e^{\beta y} + b_2 e^{-\beta y} \right]$$

Take another look at the boundary conditions. Note that the third boundary condition states that we want  $V \rightarrow 0$  as  $y \rightarrow \infty$  which  $\Rightarrow b_1 = 0$ . So rewrite potential again taking this into account

$$V(x, y) = \sum_{\beta > 0} b_2 \left[ A_1 e^{i\beta x} + A_2 e^{-i\beta x} \right] e^{-\beta y}$$

And since  $b_2 A_1$  and  $b_2 A_2$  are just constants

$$V(x, y) = \sum_{\beta > 0} \left[ A_{\beta} e^{i\beta x} + B_{\beta} e^{-i\beta x} \right] e^{-\beta y}$$

Now, we can apply the boundary conditions for one side panel (first boundary condition)  $V(0, y) = 0$

$$V(0, y) = \sum_{\beta > 0} \underbrace{[A_{\beta} + B_{\beta}]}_{A_{\beta} + B_{\beta} = 0} e^{-\beta y} = 0$$

Then again, we rewrite our potential

$$V(x, y) = \sum_{\beta > 0} A_{\beta} \left[ e^{i\beta x} - e^{-i\beta x} \right] e^{-\beta y} = \sum_{\beta > 0} A_{\beta} [2i \sin(\beta x)] e^{-\beta y}$$

Now, we apply the boundary condition for the other side

$$V(L, y) = \sum_{\beta > 0} 2i A_{\beta} \sin(\beta L) e^{-\beta y} = 0$$

Noticing that the condition on sin implies

$$\beta L = n\pi \longrightarrow \beta = \frac{n\pi}{L}$$

so we obtain

$$\boxed{V(x, y) = \sum_{n=1}^{\infty} A_n \sin\left(\frac{n\pi x}{L}\right) \exp\left(-\frac{n\pi y}{L}\right)}$$

Figure E.1: **Caltech Excellent TA Award**: awarded in June 2012. Attachment shows archived web page from Caltech Registrar Newsletter indicating the acknowledgement.

Registrar's Newsletter

<https://web.archive.org/web/20120531154207/http://www.registrar.calte...>



preparation for and assistance at office hours were touted by many in helping them succeed in the course as he also had a number of example problems to draw from. Jeff is a TA who consistently went out of his way to help his students.

Kun Woo Kim, TA for Ph 002A – Kun Woo is a G4 in Applied Physics and many students felt fortunate to have his help in getting through Ph 2a. Students appreciated that he always attended lectures and prepared his recitation sections to supplement the lectures, filling in holes when needed and encouraging further understanding of the topics. He clearly made an impact on his students, as one student stated, “He is very caring, tries to know all his students, and clearly is happy to do his job.”

Giordon Stark, TA for Ph 001B – Giordon is an UG in Physics and clearly knew of his students appreciation for his help as his section grew and grew in attendance. “The G man rocks!” was expressed, as students appreciated his clear explanations and enthusiasm. A student stated, “He is not only engaging, but the material he presents in class is easy enough to understand and challenging enough to reinforce our understanding of the topic.”

Christine Morrison, TA for Ch 001B – Christine is a G1 in Chemistry and showed that enthusiasm for the subject really makes a difference in students’ reactions to the material. She was described as “very passionate about both the material and ensuring the students understood it” ... causing one student to express “I wish more of my TAs were like Christine Morrison.”

Luis Navarro, TA for Ch 001B – Luis is a junior in Chemistry who had many students, including those not formally in his section, using the word “awesome” to describe him and his teaching style. Students felt Luis knew what they were capable of and that he covered material extremely well. One student put it this way – “His teaching is incredibly clear; when he says something, I feel that I have an immediate grasp of whatever he's talking about. It's not really ‘aha’ moments that I experience when he presents material, it's more like a continuous stream of thoughts like, ‘of course it works that way--how obvious.’”

Thanks to Jeff, Kun Woo, Aaron, Christine, and Luis for making a difference in the academic lives of the undergraduates. We appreciate all of the time and effort that you put into your work with students. Again, thanks so much for doing such a great job in the classroom!

And we wanted to continue to thank two TA's that have been doing stellar work for the past couple of years: Alden Walker, in Ma 002, and Gemma Mason, ACM 095/100. Both have been recognized before, but continue to receive lauds every term they teach. Thank you!

#### **STUDENT2STUDENTS MENTOR PROGRAM**

The Counseling Center is delighted to announce the launch of the Student2Student mentor program. It's for Caltech students and by Caltech students. Mentors are there to help with a wide range of issues such as choosing a grad school, managing stress, relationship issues, etc. This is a mentor program for and by undergraduate and graduate students with assistance from the Counseling Center. Interested in getting a mentor or being a mentor? Go to [s2s.caltech.edu](http://s2s.caltech.edu).



#### **REGISTRAR'S OFFICE HOURS**

Just a reminder that the Registrar's Office is open during the lunch hour on the busiest days – first day of the term; Add Day; and Drop Day. Feel free to drop by during the lunch hour on these days and we'd be happy to assist you. We are closed for lunch, noon – 1pm, on all other business days.

#### **FORMS AVAILABLE ONLINE INCLUDING VOTER REGISTRATION**

Considering a double option or a minor? Would like to change your adviser? Need to petition UASH? You can find all the forms needed on the Registrar's website at <http://www.registrar.caltech.edu/forms.htm>. We also have a link there for Voter Registration Cards by which you can register or re-register to vote in California. We urge you to become civically engaged!

Figure E.2: **Student Instructor:** web programming courses at Caltech. Winter 2011-2012 and Spring 2009-2010.

Firefox

<https://tadeans.caltech.edu/CurrentYearSTCInformation.htm>

CALIFORNIA INSTITUTE OF TECHNOLOGY

DEAN OF STUDENTS

Home

Student Taught Courses



**Student Taught Courses Information**

**Course for Spring 2011-12**

Stanek, Andrew, [Neural Networks Syllabus](#)

**Course for Winter 2011-12**

Giordan Stark, [Basic Web Programming Syllabus](#)

**Previous course information**

**Courses for Fall 2010-11**

Kyung-ha Lee, [Introductory Korean Syllabus](#)

Mackensie Day, [Improvisational Theater Syllabus](#)

Tyler Hannasch, [Quantitative Investing Strategies Syllabus](#)

**Courses for Spring 2009-10**

Christian Griset, [American Film Institute's Top 100 Syllabus](#)

Giordan Stark and Brian Merlob, [Basic Web Programming Syllabus](#)

Eric Stansifer and Nathan Watson, [Esoteric Programming Languages and Algorithms: Blum-Blum-Shub and Other Topics Syllabus](#)

Gabriel Mendoza, [Introduction to Digital Jockeying Syllabus](#)

Mackenzie Day, [Improvisational Theater Syllabus](#)

Tyler Hannasch and Benjamin Flora, [Quantitative Investing Strategies Syllabus](#)

**Courses for Winter 2009-10**

Joe Antognini, [A History of the Modern American Libertarian Movement Syllabus](#)

Siripat Sumanaphan, [Thai Conversation Syllabus](#)

1 of 1

5/25/24, 5:38 PM

## E.1 Certificates of formal courses in teaching and learning in higher education – *none yet*

## E.2 Relevant Certificates of service – *none yet*

## E.3 Educational development plan, if applicable – *not applicable*

## E.4 Course evaluations

Figure E.3: **UChicago TA Evaluations:** discussion sections and lab courses. This contains various screenshots from emails from Tiffany Kurns during my tenure at University of Chicago from 2012-2018. Not all evaluations were collected (particularly from the lab courses).

(a) PHY225 – Advanced Electromagnetism (2015)

| Physics 225: Giordon Stark                                                                                                                                                                                                                                                 |                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Giordon was amazing. He typed up all of Prof Miller's lecture notes, and also all of his own discussion notes. He also had really clear solutions for the pests that he wrote solutions for. Very helpful, and clearly very dedicated to helping us succeed in this class. | He's a good guy, and he's very helpful and energetic. He wants to help, and it shows.                                                                                                                  | Giordon is fantastic!! He is always willing to help and responds to emails very quickly, even the night before the assignment is due. He is also very funny and a very approachable guy. He grades problem sets pretty harshly, but that isn't necessarily a weakness.                                                                                                          |
| I very much appreciate Giordon's efforts LaTeXing his discussion notes and the course lecture notes.                                                                                                                                                                       | Giordon wasn't my TA but he posted lecture notes that were incredibly detailed and helpful. He essentially compiled a mini additional textbook for the course. He was also helpful in review sessions. | Does a great job explaining physics problems that employ symmetry and superposition so that they can be solved in a much simpler light. He also goes over simpler concepts that Professor Miller just does not have the time to explain. No weaknesses.                                                                                                                         |
|                                                                                                                                                                                                                                                                            | He does a very thorough job on the comments for each homework and showing us new examples in discussion section. Can be a bit tough in grading, but it's fair.                                         | Giordon is the best TA's in the physics department. I didn't go to discussion very often because I was comfortable with the material, but when I did go, Giordon always clarified the material from lecture. His HW solutions and review sheets are also incredibly useful. I think he expects more out of us than many TA's but I appreciate how much effort he puts in for us |

(b) PHY225 – Advanced Electromagnetism (2014)

| Physics 225: Giordon Stark                                                                                                                                                                                                                                                 |                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
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(c) PHY141 – Advanced Mechanics (2013)

| Physics 141: Giordon Stark                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Giordon is fantastic. The only minor issue is that he'd sometimes go too fast to fit a lot of material into a discussion session already shortened by that day's quiz. However, apart from that, he's the perfect TA, and should be TA-ing every course at this university.</p> <p>IRON MAN. He is the only TA that I know of that gives us handouts in discussion. He is very helpful and often works out parts of harder homework sets with us if he thinks we did not fully cover the content in class.</p> <p>Giordon is a great TA who seems to really enjoy the material. Though he tends to sometimes cover material not even remotely related to the course instead of helping us with the material, his discussion sections are still a lot of fun, as he presents challenging and interesting problems for us to work with. An extremely minor nitpick is that he tends to hand out the printed discussion notes after the discussion is already over, while I would personally prefer to be able to look over the notes during the discussion in order to get a better idea of what's going on.</p> <p>Giordon was always very accessible and provided very helpful information during discussion session. However, sometimes he seemed condescending when answering questions. Furthermore, the discussion sessions did not always complement what we were learning in lecture, but I suspect this is not Giordon's fault, but Prof. Frisch's general disorganization.</p> | <p>Giordon presents interesting problems and occasionally goes over homework problems, which is especially helpful. Although, Giordon tends to use math that isn't introduced in the course and skips a lot of steps when he solves problems, making them sort of hard to follow. However, Giordon is forced to rush through his prepared discussion topics, because the quizzes take up half the time. I think the discussion sessions would be a lot more useful if Giordon had sufficient time to thoroughly explain what he prepares. The best solution would be much shorter quizzes or no quizzes at all.</p> <p><b>Lab Comments:</b></p> <p>Giordon is very competent as a lab TA. The only weakness I could perceive is there were times where he was unable to answer questions related to the lab, so the only other option was to simply bullshit through it, but that's not entirely his fault as much as it is poor lab manual design.</p> <p>Giordon is very fun and makes the late 4 hour labs bearable. Although I think he is a hard grader, it actually forces me to put in more work in lab, which I appreciate. Giordon is AWESOME. He is super funny and sassy but helpful. Do your error propagation correctly and you'll get good grades on labs with Giordon. He is the BEST.</p> <p>Giordon was always very accessible and provided very helpful information before starting the lab to expedite the process. However, sometimes he seemed condescending when answering questions.</p> |

(d) PHY132b – Special Relativity and Electromagnetism (2012)

| Physics 132-B: Giordon Stark , Discussion                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Lab                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Giordon was an amazing Discussion TA, he was always prepared with material to cover and he explained everything extremely clearly. He fully utilized the entire discussion time, making it very productive and helpful. My only problem with the discussions in general is that the time allocated for them (Wed 7:00-8:00pm) was terrible. It conflicted with every extra-curricular thing I participated in, it would be nice to have this earlier in the day...</p> <p>Giordon is the best TA I have ever had. I am filling out this form just to make sure someone knows that he went above and beyond this quarter. He was very well prepared for each session, sending us a review sheet with pertinent material beforehand. He went out of his way to make himself available and would even send detailed problem help by e-mail if in-person meetings could not be arranged. I highly recommend Giordon, and again, he is the best TA I have ever had after 2 years of science intensive classes.</p> <p>Giordon is always very well prepared for discussion and does his best to be accessible for students</p> | <p>Giordon was generally an effective TA. Sometimes he didn't seem to really expect us to understand what was going on and just told us to "fiddle around with it until it works" (oscilloscope).</p> <p>He was great. super available and helpful. Really useful discussions.</p> <p>Giordon sometimes went too quickly through material that was foreign to us. However, he was always very helpful when we asked for help.</p> <p>Enthusiastic, helpful and funny. Giordon was a great TA. Made the 4 hours of doing nothing more enjoyable.</p> <p>I really like him. He's funny and helpful. He explains the labs well.</p> <p>He was awesome!!!! Really helped to make the lab tolerable and a learning experience.</p> <p>Extremely helpful and patient during labs.</p> |

(e) PHY121 – Introductory Mechanics (2012)

| Physics 121-Giordon Stark, Lab                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Lab                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Clear and helpful and overall amazing TA</p> <p>Giordon was a great TA. Very dedicated and was concerned about helping us understand the lab and the material.</p> <p>Giordon was always helpful and available to students. Awesome TA!</p> <p>He was good but often did not answer questions in an obvious manner. Giordon is a wonderful TA, always prepared for lab and willing to help out with any physics questions outside of lab.</p> <p>Always seemed to know what was going on and offered help when asked. Was very helpful before and during labs.</p> | <p>Very nice, explained things if you didn't understand, was approachable, and prepared things in time for lab most of the time. Only weakness is the accent, which took a little bit of time to get used to. Otherwise excellent.</p> <p>My lab TA was very enthusiastic and more than willing to help but sometimes this was not necessarily helpful since he did not always answer questions in the most simple way and continued on with an all-encompassing explanation.</p> <p>Great TA! Very nice and always willing to help!</p> <p>Giordon is FANTASTIC. Very helpful, always prepared extra materials to help us and went above and beyond</p> <p>Giordon is literally the best TA I have ever had. He is so helpful and so nice and goes the</p> |

Figure E.4: **Caltech TA Evaluation:** discussion section for Ph001b.

|                                                                                                                                                                                                                                                                                                                     |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Please provide any comments you may have regarding the teaching assistant: Giordon Stark                                                                                                                                                                                                                            |  |
| Giordon is a wonderful TA who spends a lot of time answering any students' questions and taking extended office hours. He is always free to answer questions, knows the material well, and tries different methods to help the students understand the concepts. He cares a lot about this class and it is evident. |  |
| Giordon was awesome! Explained the content clearly. Knew what he was talking about.                                                                                                                                                                                                                                 |  |
| Giordon is awesome! He always went above and beyond anything that was asked of him. He clearly explained the material and aided in completing homework.                                                                                                                                                             |  |
| Very helpful and good at explaining concepts.                                                                                                                                                                                                                                                                       |  |
| AWESOME AWESOME AWESOME TA. Thank you so much!                                                                                                                                                                                                                                                                      |  |
| Very helpful and responsible. Have very good command of the content of this course and explain things well. Thanks for saving us from the non-collaborate homework =)                                                                                                                                               |  |



## F: Portfolio of leadership and administration

Figure F.1: **Formal ATLAS Appointments:** screenshot from ATLAS' "Glance" database showing the formal management roles I held within the collaboration as both a subgroup convener for a physics analysis group as well as a committee member for early career scientists

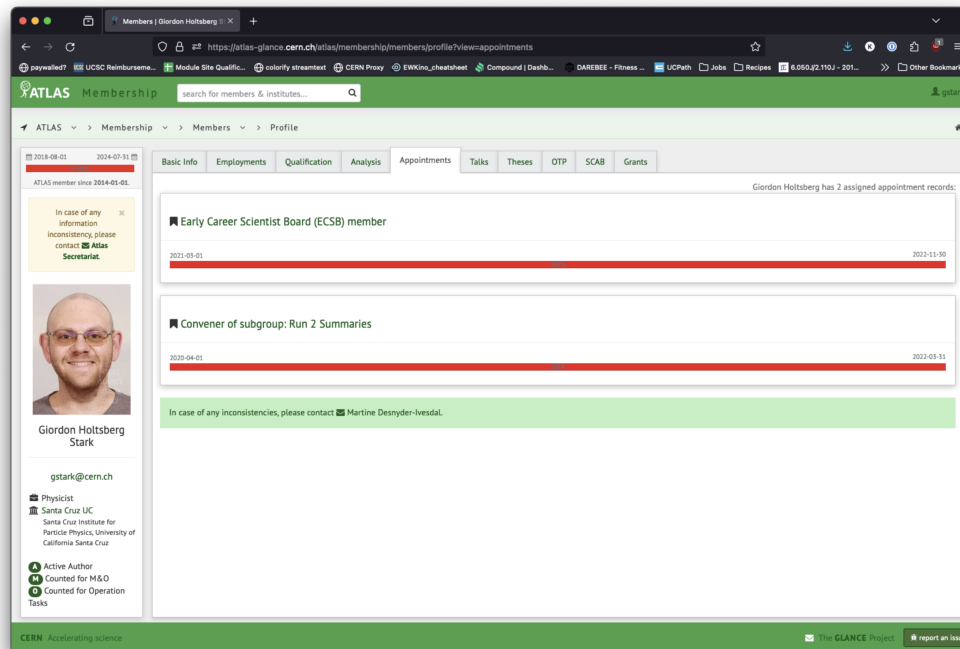


Figure F.2: **Formal US-ATLAS Appointments:** e-mail showing that I served on the US-ATLAS Equity, Diversity, and Inclusion (EDI) committee.

Gmail - US ATLAS EDI Committee

<https://mail.google.com/mail/u/0/?ik=6089e61945&view=pt&search=all&permthid=thread-f...>



Giordon Stark <kratsg@gmail.com>

### US ATLAS EDI Committee

1 message

Sarah Demers <sarah.demers@yale.edu> Sat, Feb 27, 2021 at 4:07 AM  
 To: Henry J Lubatti <lubatti@uw.edu>, Laura Jeanty <laura.jeanty@cern.ch>, Thomas Schwarz <schwarz@umich.edu>, Giordon Stark <gstark@cern.ch>, Emily Ann Smith <emily.ann.smith@cern.ch>, Gianantonio Pezzullo <g.pezzullo@cern.ch>, Elodie Deborah Resseguie <elodie.deborah.resseguie@cern.ch>  
 Cc: "Gordon T. Watts" <gwatts@uw.edu>

Hi all,

I'm writing with a bit more info on the US ATLAS EDI Committee, and to put you all in touch. I want to thank Tom, Laura and Giordon for agreeing to continue their service on this committee through the end of 2021. I also want to thank Emily, who joined this committee just as we went on hiatus, but who nevertheless helped us out with search committee work over the past year, and whose term continues through the end of 2021. I want to extend a welcome to Henry, who has agreed to chair this committee through the end of 2022, and to Elodie and Giani, the two new members of this committee, whose terms also extend through the end of 2022. This membership should all be documented correctly on the IB Twiki page. Please let me know if you see any errors there:

<https://twiki.cern.ch/twiki/bin/viewauth/AtlasProtected/USAtlasInstituteBoard>

Henry is in the midst of double teaching, and wanted me to pass along the information that the committee will be getting started in late March / early April. In the meantime you all can be thinking about what priorities you see for the work of this committee. If you are not yet a member of this e-group (set up initially by Laura!), please join it:

[usatlas-diversity-inclusion-contacts@cern.ch](mailto:usatlas-diversity-inclusion-contacts@cern.ch)

(The e-groups page is here: <https://e-groups.cern.ch/e-groups/EgroupsSearch.do> and you should be able to search for the e-group above and subscribe. If you have any problems, let us know.)

Thanks, again, for your work on this important topic!

Best regards,  
 Sarah

Figure F.3: **Search Committees:** I have had the honor of being involved on search committees both within US-ATLAS but also within ATLAS as a whole. Below are e-mails as proof showing my service to the collaborations I am involved in, one for a search within ATLAS for new Early Career Scientist Board (ECSB) members [in part to replace me] and another for an Education and Public Outreach (EPO) Co-ordinator for US-ATLAS.

(a) ATLAS ECSB

Gmail - REMINDER: Confirmation of date: Search Committee for ECSB members <https://mail.google.com/mail/u/0/?ik=6089e61945&view=pt&search=all&permthid=thread-f...>

 Gmail Giordon Stark <kratsg@gmail.com>

**REMINDER: Confirmation of date: Search Committee for ECSB members**  
31 messages

**Marlene Desnyder-Ivestal** <Marlene.Desnyder-Ivestal@cern.ch> Mon, Nov 21, 2022 at 1:01 AM  
To: Alessandro Nisati <Alessandro.Nisati@cern.ch>, Elizabeth Brost <elizabeth.brost@cern.ch>, Paolo Francavilla <Paolo.Francavilla@cern.ch>, Stefan Richter <stefan.richter@cern.ch>, Michele Fauci Giannelli <michele.fauci.giannelli@cern.ch>, Giordon Holtsberg Stark <giordon.holtsberg.stark@cern.ch>, Benjamin Richard Davis Purcell <benjamin.richard.davis-purcell@cern.ch>, Dila Maria Portillo Quintero <dila.maria.portillo.quintero@cern.ch>  
Cc: Lucia Di Ciccio <Lucia.Di.Ciccio@cern.ch>

Dear colleagues,

This is a reminder of the Search Cttee today - please find the details below.

The list of nominations has been uploaded in Indico.

Best regards,  
Marlene

---

**From:** Marlene Desnyder-Ivestal  
**Sent:** 18 November 2022, 15:00  
**To:** Alessandro Nisati <Alessandro.Nisati@cern.ch>, Elizabeth Brost <elizabeth.brost@cern.ch>, Paolo Francavilla <Paolo.Francavilla@cern.ch>, Stefan Richter <stefan.richter@cern.ch>, Michele Fauci Giannelli <michele.fauci.giannelli@cern.ch>, Giordon Holtsberg Stark <giordon.holtsberg.stark@cern.ch>, Benjamin Richard Davis Purcell <benjamin.richard.davis-purcell@cern.ch>, Dila Maria Portillo Quintero <dila.maria.portillo.quintero@cern.ch>  
**Cc:** Lucia Di Ciccio <Lucia.Di.Ciccio@cern.ch>  
**Subject:** Confirmation of date: Search Committee for ECSB members

Dear colleagues,

Many thanks for completing the Newell.

The above-mentioned Search Committee is confirmed for Monday 21 November from 14:00-15:30:

[Search Committee for the ECSB members \(21 November 2022\)](#) [Indico \(cern.ch\)](#)

For those who are present at CERN, room 40-4-D08 has been booked.

The list of nominations will be uploaded on Monday morning.

Kind regards,  
Marlene, on behalf of Lucia.

---

**From:** Marlene Desnyder-Ivestal

1 of 90 5/27/24, 11:40 PM

(b) US-ATLAS EPO

Gmail - Call for nominations: US-ATLAS Education and Public Outreach (EPO) Co-coordinat... <https://mail.google.com/mail/u/0/?ik=6089e61945&view=pt&search=all&permthid=thread-f...>

 Gmail Giordon Stark <kratsg@gmail.com>

**Call for nominations: US-ATLAS Education and Public Outreach (EPO) Co-coordinators (2 positions)**  
1 message

**Mark Kruse** <mkruse@phy.duke.edu> Tue, Feb 25, 2020 at 8:28 AM  
To: usatlas-ib@lists.bnl.gov, usatlas-ib-l@lists.bnl.gov  
Cc: Claire Lee <claire.lee@cern.ch>, Mark Charles Kruse <mkruse@phy.duke.edu>, Giordon Holtsberg Stark <giordon.holtsberg.stark@cern.ch>, Daniel Whiteson <whiteson@cern.ch>, Sriniraj Rajagopalan <srinir@bnl.gov>, Christopher Bee <christopher.bee@stonybrook.edu>

Dear Colleagues,

The term of office of Mark Kruse (Duke) as US-ATLAS Education and Public Outreach (EPO) Coordinator will shortly end and we would like to solicit nominations for **two US-ATLAS EPO co-coordinator positions starting 1 June 2020**.

This request supersedes a previous solicitation over a year ago, due to how this position has evolved in that time to include a significant HL-LHC component, as described below. The terms of each position are for two years, with reappointments based on mutual considerations.

A description of the charge and responsibilities for the US-ATLAS EPO Co-coordinator positions are appended below. For both positions there will be sufficient overlap with the current EPO Coordinator to understand their respective charges, responsibilities, and the status of ongoing projects and plans.

A search committee consisting of Mark Kruse (Duke, chair), Claire Lee (BNL), Giordon Stark (UCSC) and Daniel Whiteson (UCI), will evaluate the US-ATLAS collaboration's feedback. The search committee will recommend a shortlist of willing candidates to the US-ATLAS Operations Program Managers (OPMs) in early April.

**Please send your nominations and feedback to the search committee by Monday 16 March 2020.**

Self-nominations are entirely acceptable and encouraged. In addition please feel free to contact the committee with any further questions concerning these positions.

Kind regards,  
Mark Kruse, Claire Lee, Giordon Stark, Daniel Whiteson  
([mkruse@phy.duke.edu](mailto:mkruse@phy.duke.edu), [claire.lee@cern.ch](mailto:claire.lee@cern.ch), [gstark@cern.ch](mailto:gstark@cern.ch), [daniel@uci.edu](mailto:daniel@uci.edu))

---

**Description of US-ATLAS EPO Coordinator positions and further information**

1 of 2 5/27/24, 11:41 PM

# G: Portfolio of cooperation with wider society, innovation, and entrepreneurship

Figure G.1: United States Achievement Academy All American Scholar At-Large: Palm Beach Post newspaper. This shows the award that fewer than 10% of American High School students receive.





Figure G.2: **ASLCORE Physics Team**: American Sign Language development of the Physics lexicon. The screenshot shows myself as one of three content experts for the team, and the only one with a PhD in Physics. [\[url\]](https://www.aslcore.org/team/)

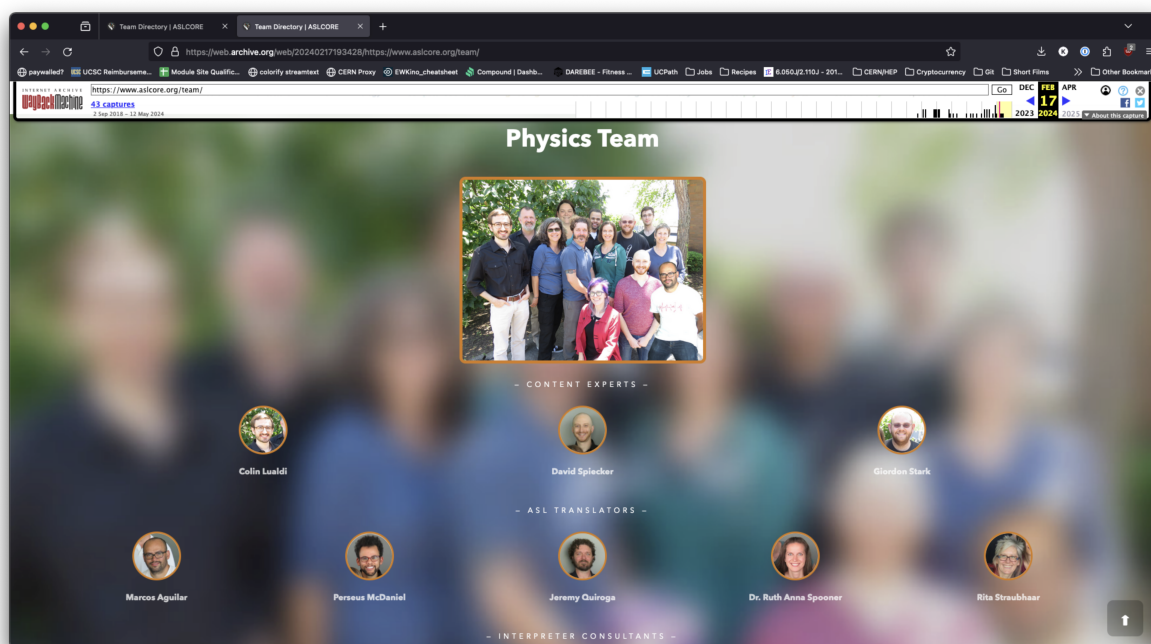
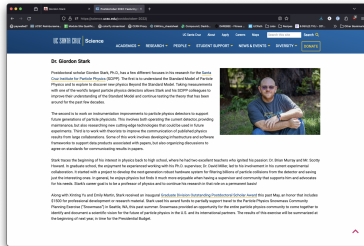


Figure G.3: **Howard Shavel Youth Award**: recognition given in 2008 for outstanding volunteerism with the American Red Cross of Palm Beach County, FL, USA.

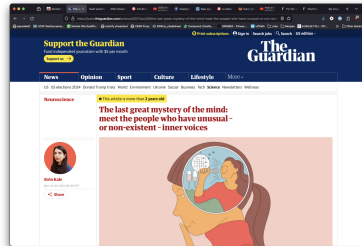


Figure G.4: **Media Outreach:** Various snippets of public outreach are shown (by way of news articles). Use the provided URL to see more details.

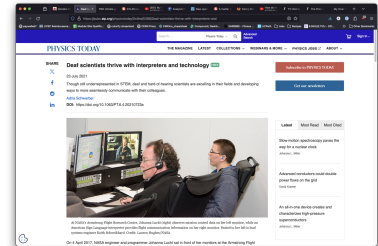
(a) Postdoctor 2022, UC Santa Cruz. [url](#)



(b) Inner Voices, The Guardian. [url](#)



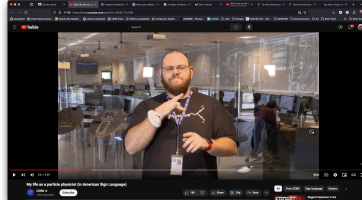
(c) Deaf scientists, Physics Today. [url](#)



(d) Public Likelihoods, Symmetry Magazine [url](#)



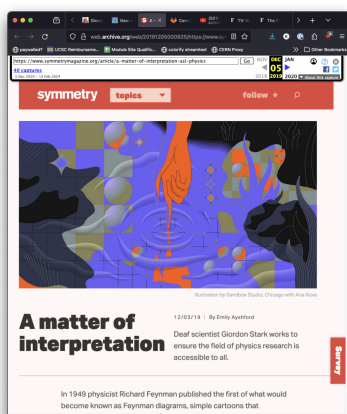
(e) Life as Deaf Particle Physicist, ASL, CERN YouTube. [url](#)



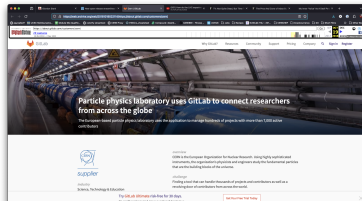
(f) Analysis Preservation Boot-camp, IRIS-HEP. [url](#)



(g) ASL in Physics, Symmetry Magazine. [url](#)



(h) Using CI/CD in CERN, Git-Lab Blog. [url](#)



(i) LHC Experiments in ASL, CERN YouTube. [url](#)

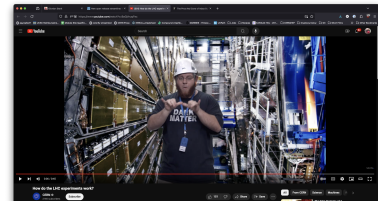


Figure G.5: **Health and Safety Education Chair for Youth Council:** email showing that I was on the Board of Directors for the American Red Cross from 2006 to 2007.

Gmail - Board Orientation/Meet & Greet Reminder/Updated Board Roster <https://mail.google.com/mail/u/0/?ik=6089e61945&view=pt&search=a...>



Giordon Stark <kratsg@gmail.com>

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**Board Orientation/Meet & Greet Reminder/Updated Board Roster**

1 message

---

**Abby Widmann** <WIDMANNA@redcross-pbc.org>

Wed, Jun 20, 2007 at 7:16 AM

Good Morning Board Members,

Just a reminder we have scheduled the new Board Orientation for this Saturday, June 23, 2007 from 9:00 a.m.-12:00 p.m. All Board Members have been invited to a meet and greet luncheon directly following the orientation. The orientation will take place at Chapter Headquarters, 825 Fern Street, West Palm Beach, FL. Please RSVP your attendance if you have not already done so to Abby Widmann at 561-650-9120 or via email [widmanna@redcross-pbc.org](mailto:widmanna@redcross-pbc.org) so we can have an accurate lunch count.

Also attached is an updated board of director's roster for fiscal 2007-2008, there have been a few additions and revisions so please make sure to save the latest copy for your files.

Abby Widmann  
Executive Assistant  
American Red Cross  
Greater Palm Beach Area Chapter  
(561) 650-9120



*Celebrating 90 Years  
of Service*



---

 **Board of Directors Roster 2007-2008 6-20-07.doc**  
119K



Figure G.6: **Best of Class for Palm Beach County:** Palm Beach Post newspaper. This shows that I was selected as Best in Class / Most Likely to Overcome Any Obstacle in 2008.

(a) front page



(b) next page



Figure G.7: **URA DC Policy Trip:** Washington D.C.. This picture shows me participating in the 2015 DC Trip to lobby for Particle Physics funding based on the 2014 P5 report.



Figure G.8: **Deaf Space Camp**: biography/one-pager advertising me as a Deaf STEM role model for CSD Learns Deaf SPace Unlimited



# SPACE CAMP UNLIMITED

## Deaf STEM Role Model Biography

**NAME:** Giordon Stark, Ph.D.

**PRONOUNS:** point / he / him

**HOMETOWN:** Palm Beach Gardens, Florida

**CURRENT CITY:** Santa Cruz, California (75%)  
Geneva, Switzerland (15%)  
An airplane (10%)

**CURRENT JOB:** Postdoctoral Scholar Employee at Santa Cruz Institute of Particle Physics (SCIPP), UC Santa Cruz, California

**DEGREES:** Ph.D. University of Chicago 2018  
B.S. Caltech 2012

**Giordon Stark, Ph.D.**

**BIOGRAPHY:** Dr. Giordon Stark is a Deaf experimental particle physicist. He is part of the ATLAS collaboration at the Santa Cruz Institute for Particle Physics. He graduated from Caltech in 2012 with a B.S. degree in Physics. Then he earned his Ph.D. in Physics from University of Chicago in 2018.

Giordon's research focuses on physics beyond the Standard Model. He looks for the missing puzzle pieces that explain why particles don't always behave the way scientists predict. One way he does this is by designing experiments to observe hadronic final states in the Large Hadron Collider (LHC). Giordon also works to improve how the ATLAS collaboration communicates physics results with particle physics theorists and phenomenologists.

When Giordon is not busy trying to prove the existence of SUSY, you can find him in the kitchen proving sourdoughs, baking pavlovas, and anything else he can get his hands on.

**SPACE CAMP UNLIMITED**

**CSDLEARNS**