

US ATLAS SUPER Program for Undergraduate Summer Research

February 23th, 2022
US ATLAS IB Meeting

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For the US ATLAS Outreach Team

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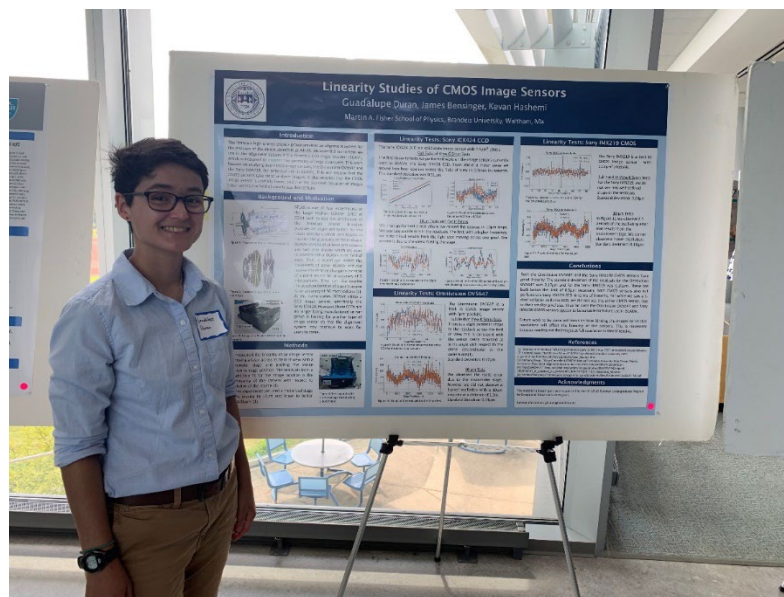
ATLAS
EXPERIMENT

US ATLAS SUPER Program

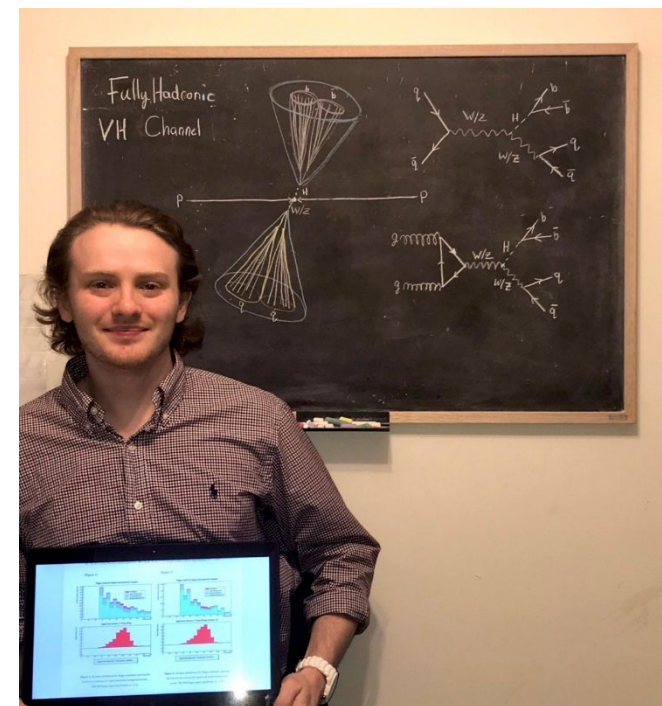
- *US ATLAS Summer Undergraduate Program for Exceptional Researchers (SUPER) supports undergraduate students already connected to US ATLAS for the summer*
 - Award of about \$5000 per student for at least 8 weeks of work
 - Additional support for travel available
 - Program running for three years, Annual Symposium event with presentations



Sabrina Corsetti, U. Michigan



Guadalupe Duran, Brandeis



Brendan Barry, UMass Amherst

	2019	2020	2021
Number of students	9	9	11

Extending to at least 15 students this year
Open program to students not in US ATLAS institutions this year

US ATLAS SUPER Program Call for 2022

- *Call for applications is open providing funding for summer undergraduate research – **deadline February 25th, letters by March 1st***
 - Instructions, FAQs and information on past awards on program website
 - <https://usatlas.github.io/super/>
 - Application form using indico
 - <https://indico.bnl.gov/event/14122/>
- Application process
 - A short description/motivation
 - A CV or resume
 - Contact information about reference
- Please let us know if you have any questions or comments

How to apply

The application form can be found here

<https://indico.bnl.gov/event/14122/>

Click on the link Application on the left to complete the online form and upload the materials by **February 23, 2022**.

In case of any questions, please email the [the US ATLAS Physics Support Managers and Outreach Coordinators](#).

Applications should contain several required pieces:

- **A short description (1 page maximum) of the motivation and planned research.** This is to be written by the student applying for SUPER funding, and must begin with a clear title. The student may discuss the proposal with their research mentor before submission. In addition to a description of the planned research, the proposal should explicitly mention any previous particle physics research (on ATLAS or otherwise).
- **A CV or Resume.** Summarize your academic background (such as number of years of study, GPA, etc). Please include relevant preparation including any applicable skills (such as competency in a programming language, knowledge of ROOT, experience with detector hardware, etc).
- **Contact information for a letter of support.** This should correspond to the research mentor in case this is known. If the project is to take place at an ATC or elsewhere, away from the home institute, an additional reference from the supervisor at the ATC/remote location is also appreciated. Please arrange for the reference letter(s) to be sent to [the US ATLAS Physics Support Managers and Outreach Coordinators](#) no later than March 1, 2022. It is up to the applicant to ensure that letters are sent and received in a timely manner.

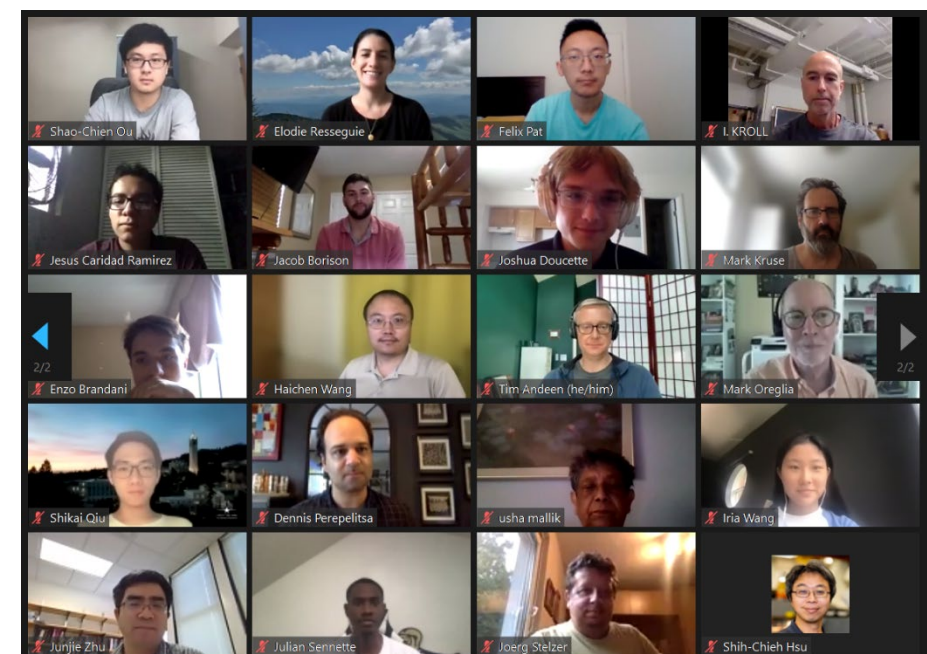
Consult the [SUPER FAQ page](#).

Examples of past funded proposals are available [at this link](#).

Contact us if anything is unclear, we really encourage everyone to apply!

Description of the Program & Expectations

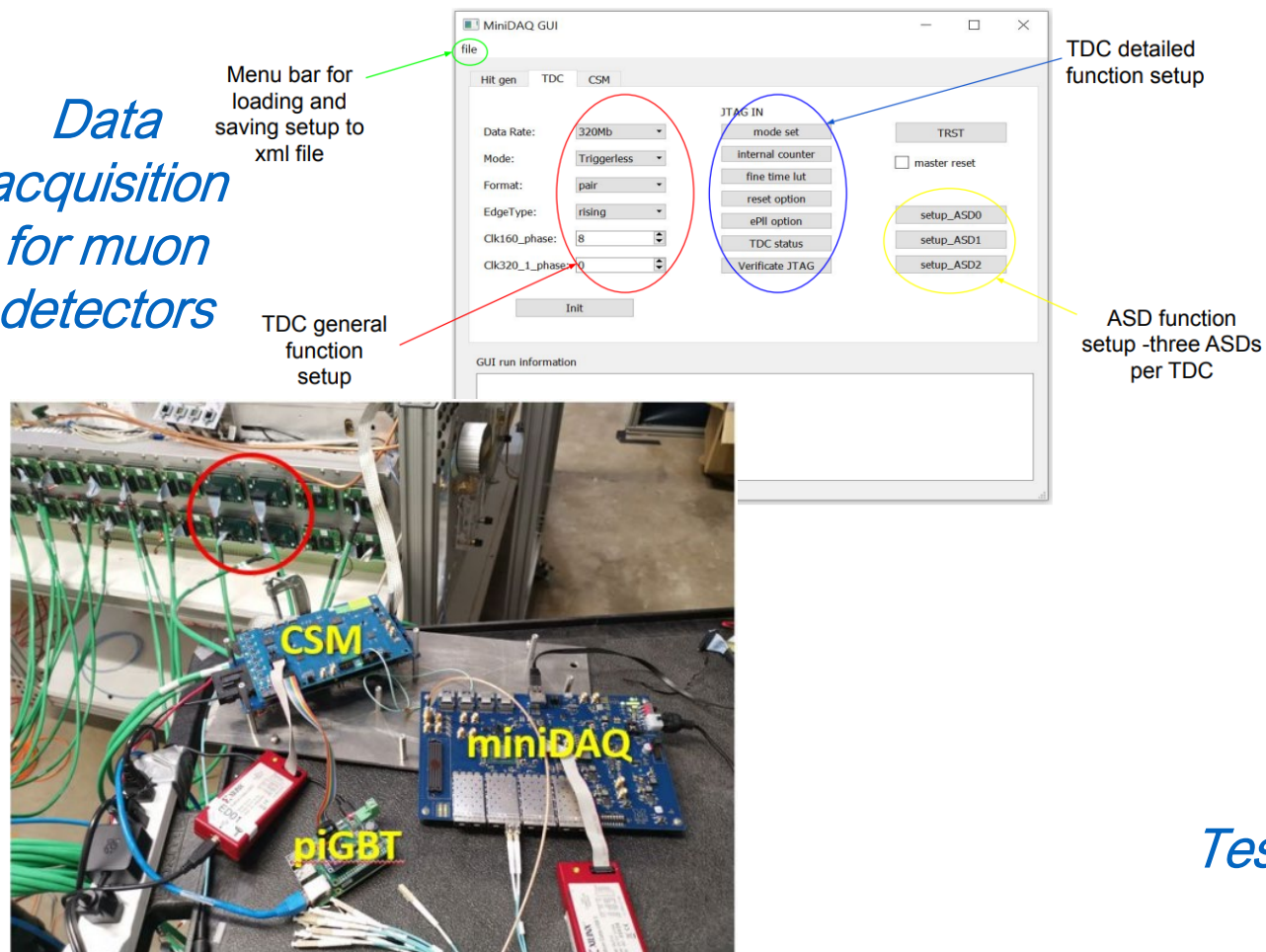
- *Prior to the start of the summer program*
 - *Pair students with US ATLAS mentors, based on interests, experience, etc*
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 - Sort out logistics in terms of dates, travel & accommodation needs, etc
 - Provide logistics support for participant through local institution and US ATLAS
 - Onboarding for those without prior experience in ATLAS or research broadly
- *During the summer program*
 - Submit a one-page progress report at the 4-week mark of the program
 - Submit a final report of at least 3 pages at the end of the program
 - Prepare a presentation at the annual Symposium
 - [Link to 2021 Symposium Event](#)



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Examples of Past Projects

Data acquisition for muon detectors



Test stand for silicon strip module testing

Environmental Monitors at BNL

- Built to monitor important physical parameters
- Ensure proper environment for staves and modules
- Used in construction, testing, and shipping
- Around 30 units are built and maintained at BNL

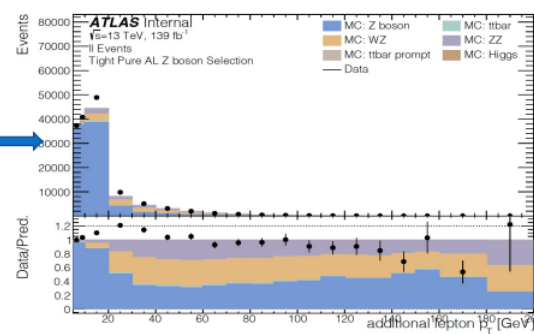
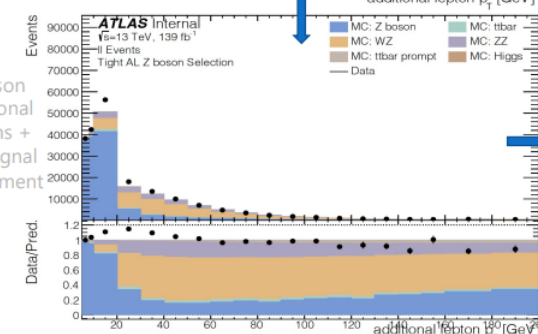
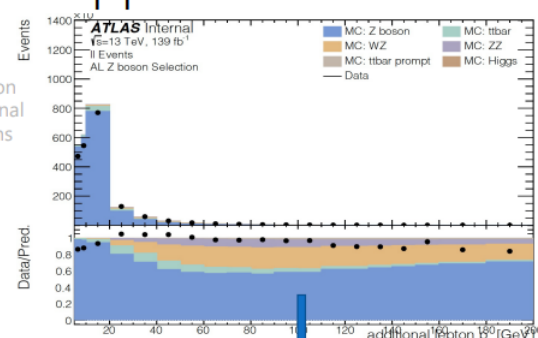


Testing optical components for data collection and transmission

Data analysis for Higgs boson measurements

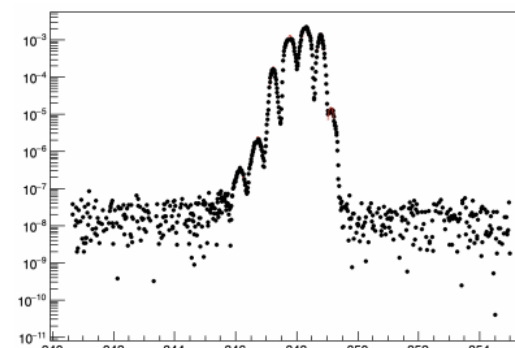
Selection cuts:

- $dR > 0.8$;
- pair lepton $p_T < 200$ GeV
- 2nd lepton $p_T < 70$ GeV
- Additional lepton $m_T < 50$ GeV

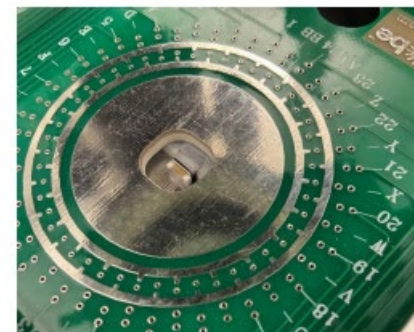


- User input selected VCSEL, Channel, burn-in time
- Manually choose peaks for fitting, saving

```
Processing OSAManualRepair.cpp...
VCSEL number (20055 - 21071)? 20121
Channel number (1 - 7)? 4
Pre/Post burn-in?: Post
Looking at Post burn-in data for V20121, channel 4
Default peak locations? (y for yes): y
845.885
846.4
846.924
847.488
848.024
848.566
849.053
Save data as appears? (y for yes): n
```



- Individual peak fit only
- Fit range can be altered for problematic data



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