

Motivational Talk, or

“Things I wish I had known before applying for postdoc jobs”

Elizabeth Brost

May 3rd, 2023

LHC Job Matching Event (JMEv) Spring '23



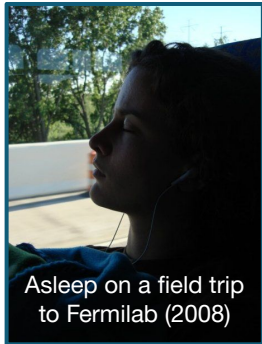
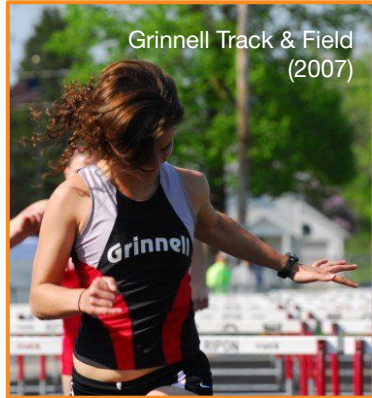
Brookhaven
National Laboratory

Caveats

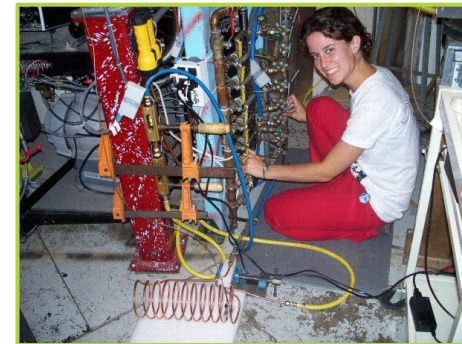
- **The LHC Early Career Scientist Boards asked me to prepare some motivational thoughts for the Job Matching event today**
 - Thank you for giving me this opportunity/soapbox!
- **I will focus on postdoc jobs, since it's spring (I'll leave permanent job advice to the fall edition)**
- **I've spent my whole academic career in the US, and 95% of it on the ATLAS experiment**
- **All opinions are my own, etc.**

My journey in physics

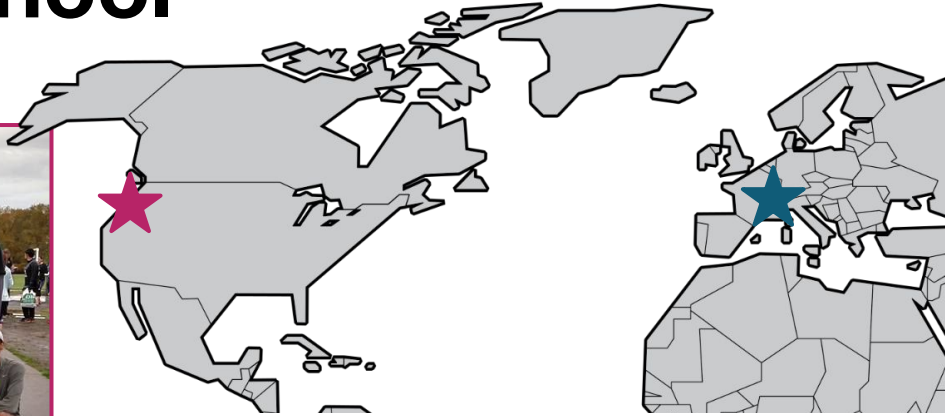
Undergrad



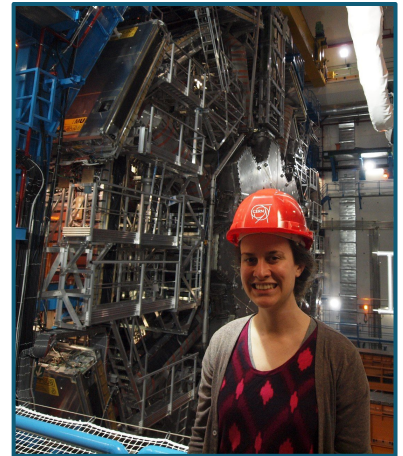
- Bachelor's degree:
 - **Grinnell College**, 2010
 - Major: Physics and French
 - **Studied in France** in 2009
- Research:
 - **STAR experiment** (2008, REU at Purdue)
 - **Cornell High Energy Synchrotron Source** (2009)
- Other: cross country and track



Grad school



First time at CERN (2012)



First visit to ATLAS (2013) 5

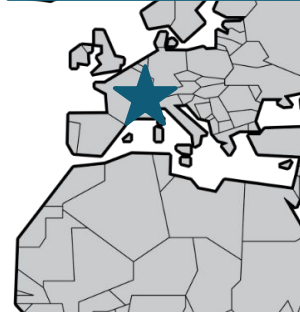
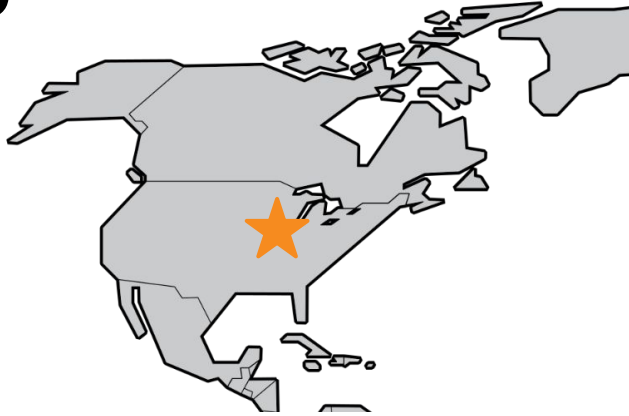


Oregon Physics grad students "Run with the Duck" (2015)

- PhD:
 - **University of Oregon**, 2016
- Research:
 - International Linear Collider
 - Photon ID for SiD
 - **ATLAS experiment**, 2011-
 - Top physics
 - Tau trigger
- Thesis: Searching for the flavor-changing neutral current in $t\bar{t}b\bar{b}$ events (in the Run 1 data)

Postdoc

HH subgroup at ATLAS Exotics and HBBS workshop in Naples (2019)



NIU & Argonne model new NIU Physics tshirts (2017)



FTK goes running ↑ and BBQs ↓ (2018)

- Postdoc:
 - **Northern Illinois University**, 2016-2019
- Research:
 - **ATLAS experiment**
 - Higgs Pair Production ($HH \rightarrow \gamma\gamma bb$)
 - FastTrackR (FTK)
- Highlights: FTK Run Coordination (2017-2018), HH subgroup convener (2019-2021)



Cleaning ATLAS (2017)



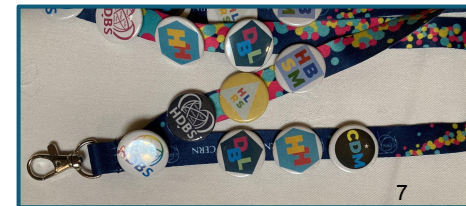
Now



- Staff Scientist:
 - **Brookhaven National Laboratory**, 2019-
- Research:
 - **ATLAS experiment**
 - Higgs Pair Production
 - ATLAS TDAQ Phase 2 Upgrade
 - Future Circular Collider
- Highlights (so far!): TDAQ Phase 2 PPES coordinator (2019-2022), Higgs and Diboson Searches group convener (2022-2024)



LHC Higgs Working Group
(+DiHiggsMass tree)



HBS branding

FCC stickers!



So you want to be a postdoc...

You'll wear many hats

- **Research**
 - Consider branching out from your thesis topic! Chance to learn new things, new communities
- **Project management**
 - Seek out chances to lead large or small teams on your experiment (analysis teams, subgroups)
 - Challenge: you will be asked to lead a team of people who don't work for you
 - Personal examples:
 - FTK Run Coordination (few dozen people, operations)
 - HH subgroup convenership (200 people, physics analysis)
- **Mentorship**
 - Graduate and undergraduate students in your group
 - Others in your working group(s) on your experiment
- **Job searching (again)**
 - More work than you expect, give it the time it deserves
 - All talks are job talks



You need to network

- **Reach out!**
 - Even before job ads are posted - ask for advice or discussions
 - Email the PI to discuss the position before you apply
 - “You can’t know which connections will be the important ones”
- **“All talks are job talks”**
 - Talks at conferences and experiment Weeks are a “currency” in our field - they look good on your CV, but also give you a chance to address a wider audience
 - Spend time on your slides, don’t just recite the cutflow of the 15 analyses assigned to your 12-minute talk
 - Tell a story
 - Make a memorable impression

Which jobs to apply to?

- **How/where to find job postings**
 - INSPIRE <https://inspirehep.net/jobs>
 - Experiment job posting boards/lists
 - [ATLAS](#) [CMS](#)
- **What do you want to work on / learn next?**
 - Seek out jobs where your skills are complementary to the ongoing work / where you can learn something new
 - Amount of freedom will vary:
 - Generally more freedom to choose topics than during your PhD
 - Universities vs. Labs
- **Pick based on people, rather than institution**

The Application

- **Your application**
 - Research Statement:
 - What you have accomplished during your PhD
 - What you want to do next (align this with ongoing work in the group you're applying to join)
 - Cover Letter:
 - **One page** letter summarizing your CV and research statement
- **Practice honest bragging about your work (this is hard!)**
 - I find it helpful to imagine that I'm writing about a friend of mine, rather than myself
- **Letters**
 - Ideally, select letter writers you've worked closely with, or who are familiar with your work (group conveners)
 - Provide list of deadlines, links, and your CV and research statement
 - **Minimum** two weeks lead time

The Interview

- **What do I look for in postdoc applications**
 - The candidate is excited about topics that align with / sensibly expand my group's physics program
 - The candidate tells a story about how their work fits into the big picture
 - Demonstrated ability to solve problems & seek out interesting problems to solve
- **Practice bragging (again)**
 - I want to hear about all of the cool things you've done!
 - Use "I" where appropriate (it's easy to fall into the habit of always using "we" when giving HEP talks)
 - Highlight which parts of the project(s) you personally led - this is especially important for non-HEP committee members to understand how your work fits in
- **Ask questions! You are also deciding if you want to pursue this job**

A few pieces of advice:

(since I have been given this excellent soapbox)



On thesis-writing

- **Writing your thesis:**

- Takes longer than you think
- Is an entirely different kind of work from anything I have done before or since - give yourself time to learn

Probably too late for this advice, since you're here applying for jobs, but start writing NOW - you can already write the detector description section, for example!

- **“Your thesis doesn’t have to be great. It doesn’t even have to be good. It DOES have to be DONE.”** - a wise colleague
- **It’s normal to feel a bit sad and aimless once your thesis is turned in and your defense is done. Give yourself time to recover.**

On “the future”

- Professional development for the “next steps”:

- In research - schools for senior PhD student and young postdocs

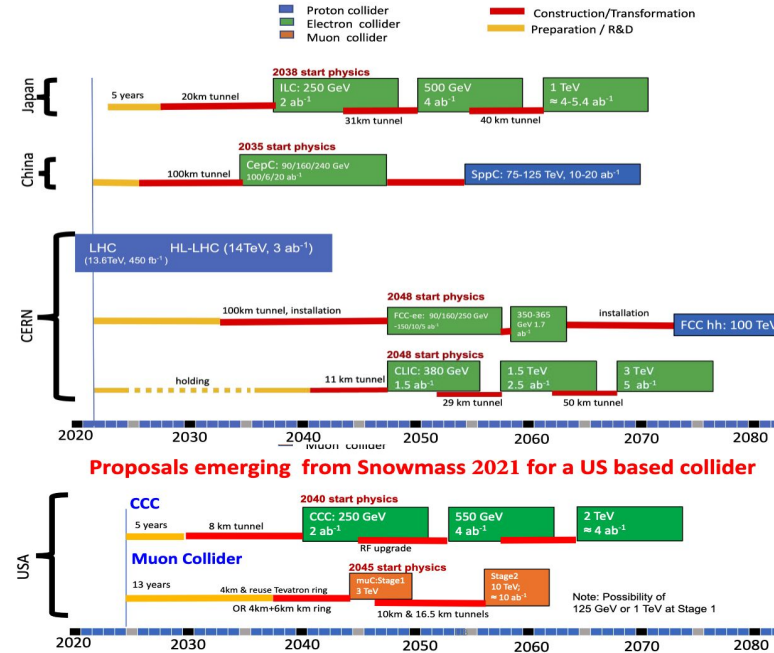
- [CERN-Fermilab Hadron Collider Physics](#) - summer school at CERN (or Fermilab in alternate years)
- [EDIT](#) (Excellence in Detector and Instrumentation Technologies) - ICFA school (at BNL this year)

- In academia - training events for early career scientists

- [Soft Skills and Networking](#) event by the LHC Early Career Scientist Boards
- [Rising Stars in Physics Workshop](#) - for early career women in physics and astronomy who are interested in careers in academia

- Future colliders

- **You** will be leading the experiments at the next collider - what kind of questions do you want to be able to answer?
- Get involved in studies and discussions towards the future of our field (example: [P5 town halls in the US](#), some of which will be dedicated to feedback from early career scientists)



[Laura Reina, P5 Town Hall, 4/12/23](#)

Conclusions

- **Applying for jobs is a LOT of work, especially while completing your PhD work and writing your thesis!**
 - Make time to take care of yourself
- **Thank you for listening - I'm also happy to answer questions offline**
 - You can find me at elizabeth.brost@cern.ch or elizabeth.brost on Skype
- **Finally, GOOD LUCK - I hope everyone here today finds a good match**
 - Shameless plug: Check out two postdoc openings right now at BNL (one [applied postdoc on ITk strips](#), one [ATLAS+FCC](#)) - discuss with [Alessandro](#) this afternoon