

LHC ECSF

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# Your next steps in HEP

## Or: How I Learned to Stop Worrying and Love the Journey

Conor Fitzpatrick

LHC ECSF Job Matching Event



**BEAUTY2CHARM**  
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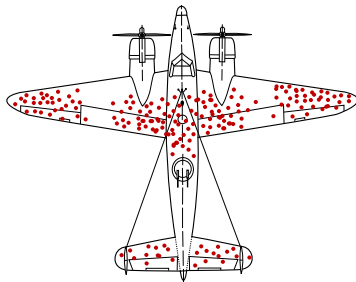
**UK Research  
and Innovation**

C. Fitzpatrick

October 24, 2023



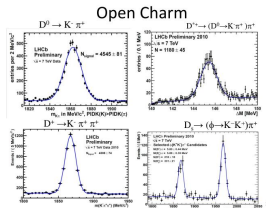
- ▶ Thanks to the ECSF coordinators for the invitation to give this (I hope!) motivational talk
- ▶ I'll try to give you some perspectives based on my experience, but:
  - ▶ I have come up through LHCb exclusively
  - ▶ My experience is based mostly in Europe
  - ▶ Everyone's journey is different!
  - ▶ **Beware my survivorship bias**
- ▶ It has been 11 years since I was awarded my PhD. However:
  - ▶ I am now familiar with hiring, fellowship and grant panels from the 'other side' of the desk.
- ▶ I hope to give generally applicable advice where possible.
  - ▶ First, a little bit about me and my own journey in HEP...



# About me



- ▶ I'm a Senior Research Fellow at the University of Manchester
  - ▶ Research focused equivalent to Senior Lecturer (UK)
  - ▶ Roughly equivalent to  $\sim$  Associate professor (US)
- ▶ I've had several roles on LHCb, but the main ones so far were during my second postdoctoral position:
  - ▶ **Project Leader**, LHCb Higher Level Trigger (2017-2020)
  - ▶ Beauty decays to Open Charm **Physics WG Convenor** (2016-2018)
- ▶ Main area of research is CP violation in Beauty to Charm ( $B \rightarrow DX$ ) decays and the LHCb Real Time Analysis Project ( Reconstruction, Trigger, Alignment)
- ▶ I was awarded an ERC Starting grant on these topics
- ▶ My permanent position at UoM was the result of a UKRI Future Leaders Fellowship.
- ▶ I'll describe briefly how I got here from my PhD



- ▶ I was very lucky to be starting a PhD (Edinburgh) right at the start of Run 1.
  - ▶ Took an active interest in commissioning, volunteered for many central and subdetector shifts
  - ▶ The control room is a good place to learn how things work. Lots of friendly experts to talk to during downtime.
  - ▶ This gave me a head start on analyses and meant I was able to find some of the first charm meson peaks at LHCb.

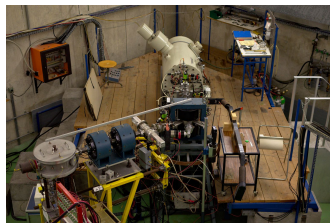
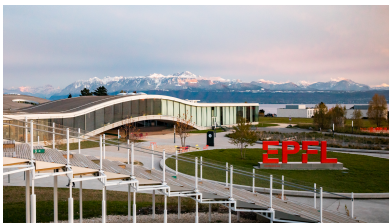
# The start of the postdoc grind

- ▶ Nearing the end of my PhD I took advice from postdocs, fellows and senior colleagues
- ▶ I applied for a CERN fellowship, **rejected first time, offered second time.**
- ▶ The two year fellowship is both a huge opportunity and very short:
  - ▶ You **can** choose to work on any CERN-approved experiment. . .
  - ▶ . . . but you don't have much time to learn a new experiment
  - ▶ Compromise: I stuck with LHCb, but **changed analysis and subdetector activities**
- ▶ The biggest adaptation was being expected to work independently: No PhD supervisor guiding your work, but I found some really good teams to work with and that made it much easier.
- ▶ Two years passed very quickly. I was applying to new jobs early in the second year.



# The second postdoc

- ▶ I applied for several positions at the end of my fellowship **with limited success**:
  - ▶ CERN LD: Limited Duration 5 year contract
  - ▶ NWO [Veni](#), Dutch fellowship programme
  - ▶ EPFL (Lausanne) Postdoc



- ▶ Lausanne was successful- five year position, close to CERN.
  - ▶ New to me: Had to learn to teach, ran accelerator readout project for 4th year students, and supervised PhD students.
  - ▶ During this time I was appointed to Trigger Project Leader and WG convenor roles
  - ▶ I suddenly had very little free time, and spent a lot of that applying for permanent positions

# The Bus Problem

'You wait ages for a bus, then three come along at once' – [New Scientist](#)

- ▶ Year n-1 at Lausanne I applied for three fellowships, three lectureships and a French CNRS lab post. **All were unsuccessful**
- ▶ In my last year of contract, I was running out of road.
- ▶ Thanks to **support and with help from colleagues** I put in one last round of applications/interviews.
- ▶ In 2019 I accepted a CERN LD, and shortly after was awarded a [UKRI Future Leaders Fellowship](#), and an [ERC Starting grant](#).
- ▶ My second postdoc was a rollercoaster, but it had more ups than downs.



# What I learned on the journey

## ▶ What I learned from my PHD:

- ▶ Volunteering for things that you think are interesting often pays off.
- ▶ Seize the moment: I had Run 1 commissioning to get involved in
  - ▶ HL-LHC is coming, this is a similar opportunity for you.
  - ▶ Important topics aren't necessarily high profile ones. Find a need and fill it.
- ▶ The work I became known for was not strongly coupled to my thesis topic.

## ▶ What I learned from the CERN Fellowship:

- ▶ Reach out to teams / colleagues you might want to work with on topics in future. You'll benefit from their support as you find independence
- ▶ Short contracts mean thinking about your next steps early.
- ▶ Change it up: Changing analysis/subdetector activity drew a line under my PhD and broadened my experience.

## ▶ What I learned from applying for grants/fellowships:

- ▶ At this level, you will have good ideas, but so will a lot of other applicants. Don't be disheartened by rejection and buy more lottery tickets.
- ▶ Senior colleagues will have been there too. They'll understand and be supportive.



# Was it worth it?



- ▶ Hopefully this has given you an idea of my journey from a PhD to Senior Research Fellow.
  - ▶ I got to work in, and eventually lead, teams of amazing people
  - ▶ I learned a lot about HEP, but also about how I work,
  - ▶ ... and how to work well with others.
- ▶ Despite this, it had its downsides:
  - ▶ Eight years of **insecure employment**
  - ▶ Long hours **writing applications** under the shadow of past rejections
- ▶ What helped was the support of the people I worked with.
- ▶ Do I think it was worth it? **Absolutely!**
- ▶ You should think carefully about whether or not it's worth it for you.

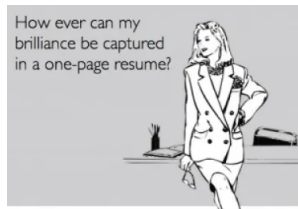
# So you've decided to apply for a postdoc

- ▶ How do you find one?
  - ▶ Inspire [jobs search](#) is usually well populated.
  - ▶ Experiments usually advertise on internal mailing lists
  - ▶ Word of mouth: If you know who you want to work with, ask them!
- ▶ What should you think about when choosing who to apply to?
  - ▶ Does the job description appeal to you?
  - ▶ Do you know the group or know people you can ask about it?
  - ▶ Where is it? Is it based at CERN or at an institute? Will you be able to travel?
- ▶ What are you willing to compromise on?
  - ▶ Don't apply to jobs you think are a bad fit...
  - ▶ ... but also don't miss out by being too inflexible
- ▶ **Don't be afraid to contact the group if anything is unclear**
  - ▶ This always works in your favor: You learn more about the role, they will find out you're enthusiastic about it.

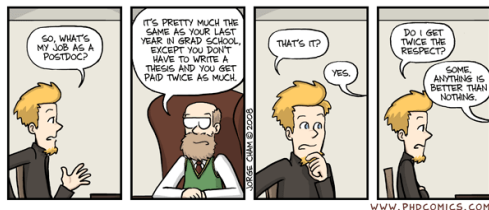


# When you've decided where to apply

- ▶ Based on my experience **applying to jobs**:
  - ▶ You have or will soon have a PhD. You're smart.
    - ▶ **So are your colleagues.** Don't let your ego prevent you from reaching out to them.
    - ▶ Share your applications / CV with colleagues early and accept feedback
    - ▶ Practice interviews with your advisor, friends, colleagues, your cat...
  - ▶ Learn from rejection **and from success**:
    - ▶ What questions tripped you up, and how would you answer them in future?
    - ▶ Request feedback! It's not always useful, but when it is it really helps
- ▶ Based on my experience **interviewing applicants**:
  - ▶ It's easy to undersell:
    - ▶ 'I worked in a team doing X' → 'In the team that did X, I was responsible for doing Y.'
    - ▶ 'I coauthored this paper' → 'I coauthored this paper, in which I was responsible for these bits'
  - ▶ Know who/where you're applying to:
    - ▶ Read up about what the group is working on and know the job description
    - ▶ Be prepared to talk about how your ideas fit with the current activities of the group.



# Starting your first postdoc



- ▶ **Your first position post-PhD is your chance to show independence.**
  - ▶ You will likely have some directed work in your new group, but also some freedom
  - ▶ Consider how to show you've moved beyond your thesis topic
- ▶ As a PhD student, your advisor helps by guiding you
  - ▶ As a postdoc, self direction can be supplemented by the team you work with.
  - ▶ Share ideas, and be prepared to accept ideas that aren't your own
- ▶ **Make some time to do things outside your direct research area**
  - ▶ Control room shifts, task forces, helping with problems/analyses others are stuck on.
  - ▶ You'll make new friends and learn who to ask for help with your own work.
  - ▶ It may even change your career path.
- ▶ **Pay it forward!**
  - ▶ You will likely work with and guide PhD students in future
  - ▶ Help others with their work and job hunting when the time comes.

# Conclusions

- ▶ I've tried to provide you with some pointers based on my journey in HEP careers
  - ▶ Everyone's journey is different, but some things are constant
- ▶ Only **you** can decide what steps to take on your own journey
  - ▶ but **reach out to your colleagues** for advice
- ▶ The take home message is, **Have fun!**
  - ▶ The type of fun is up to you, but you'll do your best work when you're enjoying it.
- ▶ **Interested in a Postdoc on the LHCb experiment?**
- ▶ I'll be advertising positions shortly. Get in touch for any questions or followups on this talk:

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