

# Industry Panellist Introductions

Karola Bejm

Jon Burr

Alix Fell

James Grundy

Martha Hilton

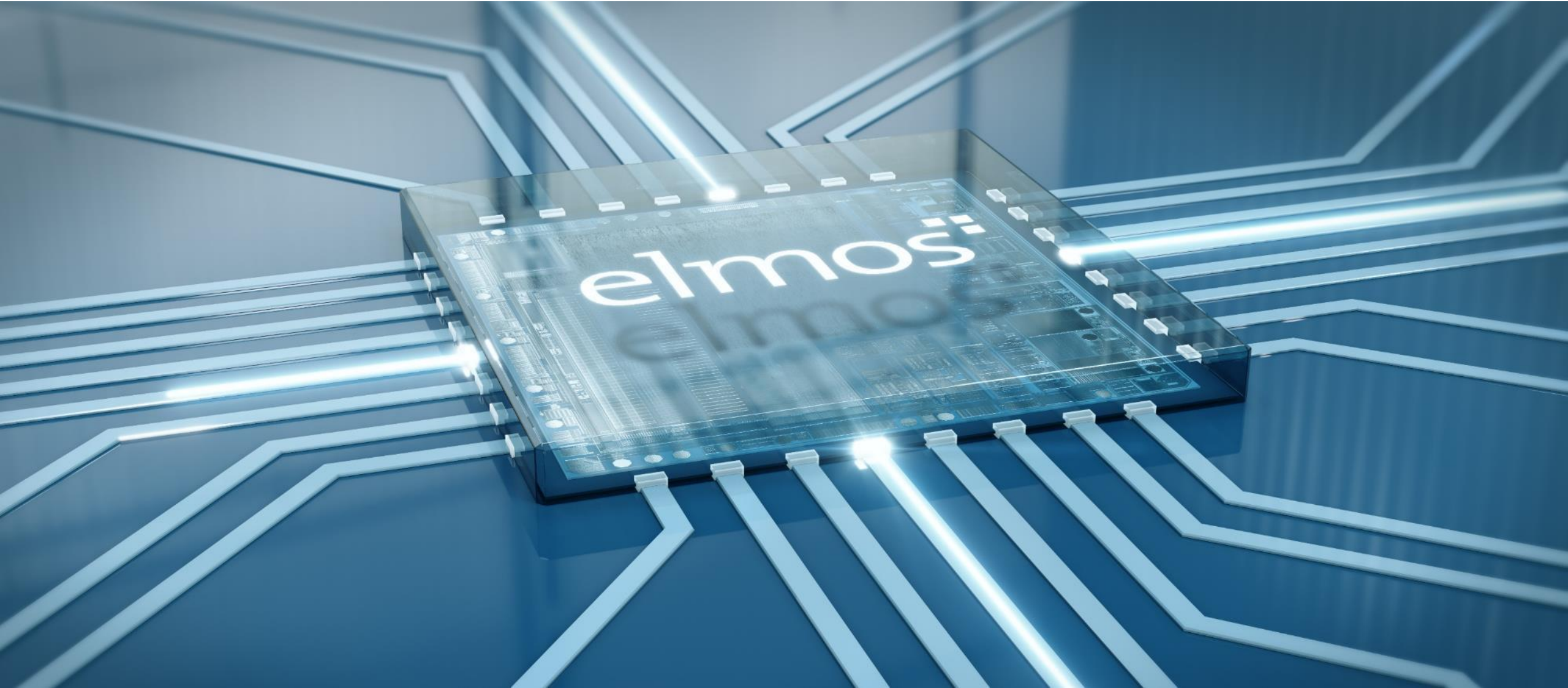
Mike Nelson

Karola Bejm

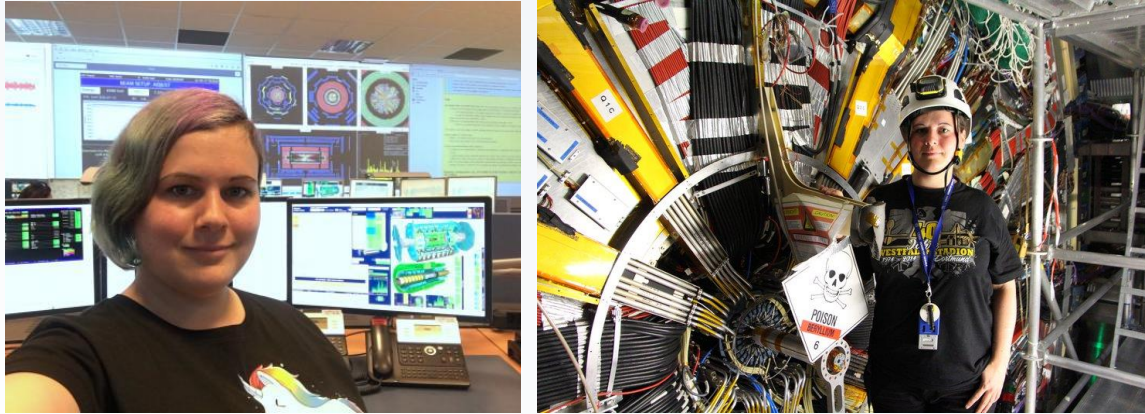
# Work opportunities for scientists in industry



Elmos Semiconductor SE



# About me



## From science...



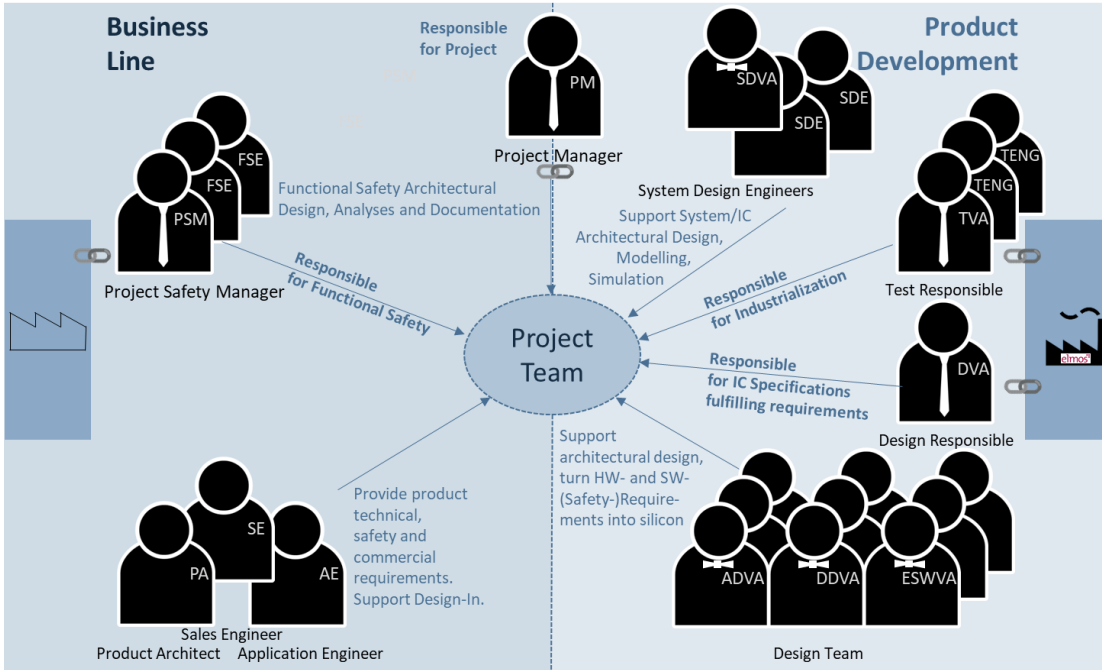
- PhD at CERN in cooperation with the Technical University of Dortmund “Commissioning of the ATLAS Insertable B-Layer and first operation experience”
- Shift leader for the ATLAS experiment, coordinating the daily operation of the detector
- Post-Doctoral Fellow & Senior Research Associate at the University of Toronto

## ...to industry

- Certified Project Management Professional®
- Working as project manager in a company that develops, produces and tests integrated circuits mainly used in the automotive industry
- Leading a diverse team of engineers, designers, quality testers, logistic experts and many more
- Bridging the communication between technical teams and customers
- Head of PMO Service group, improving processes and tool landscape for project management work

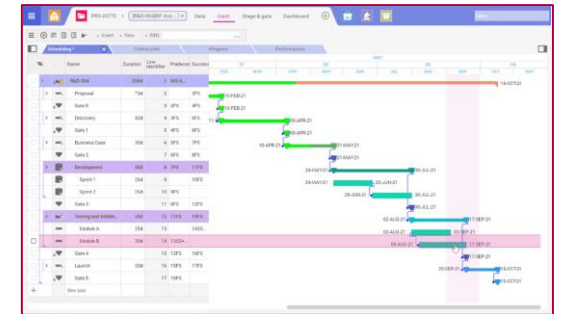
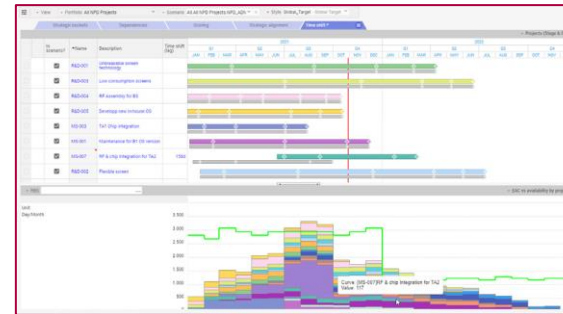


# Project Management is more than planning...



A project manager:

- Shapes a development project from the start
- Gives direction to the team & leads it
- Keeps track of important KPIs (Key Performance Indicators) and ensures the project stays on track



### System Dashboard

**Introduction**

Welcome to ELMOS ext. issue tracking system !

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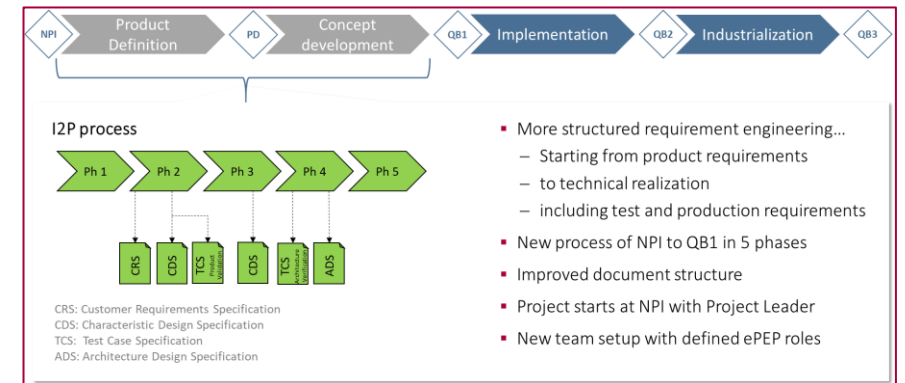
If you run into any issues with the server, please contact:

jira-postmaster@elmos.eu

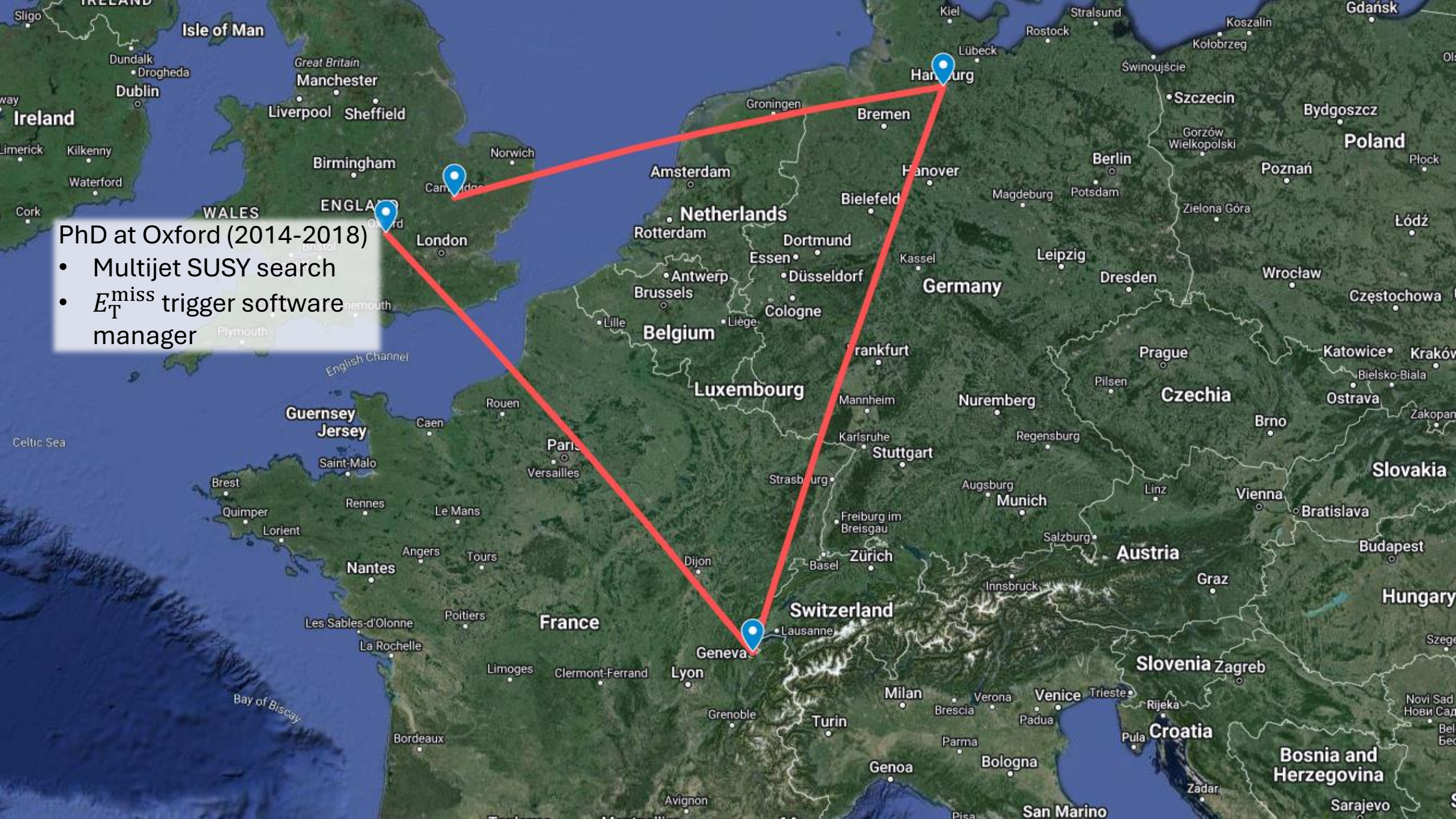
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Pie Chart: 523.63 - Universal Smart LIN Motor Controller - medium power

Status	Count
Closed	62
Open	54
Resolved	37
In Progress	23
Reopened	3



Jon Burr



PhD at Oxford (2014-2018)

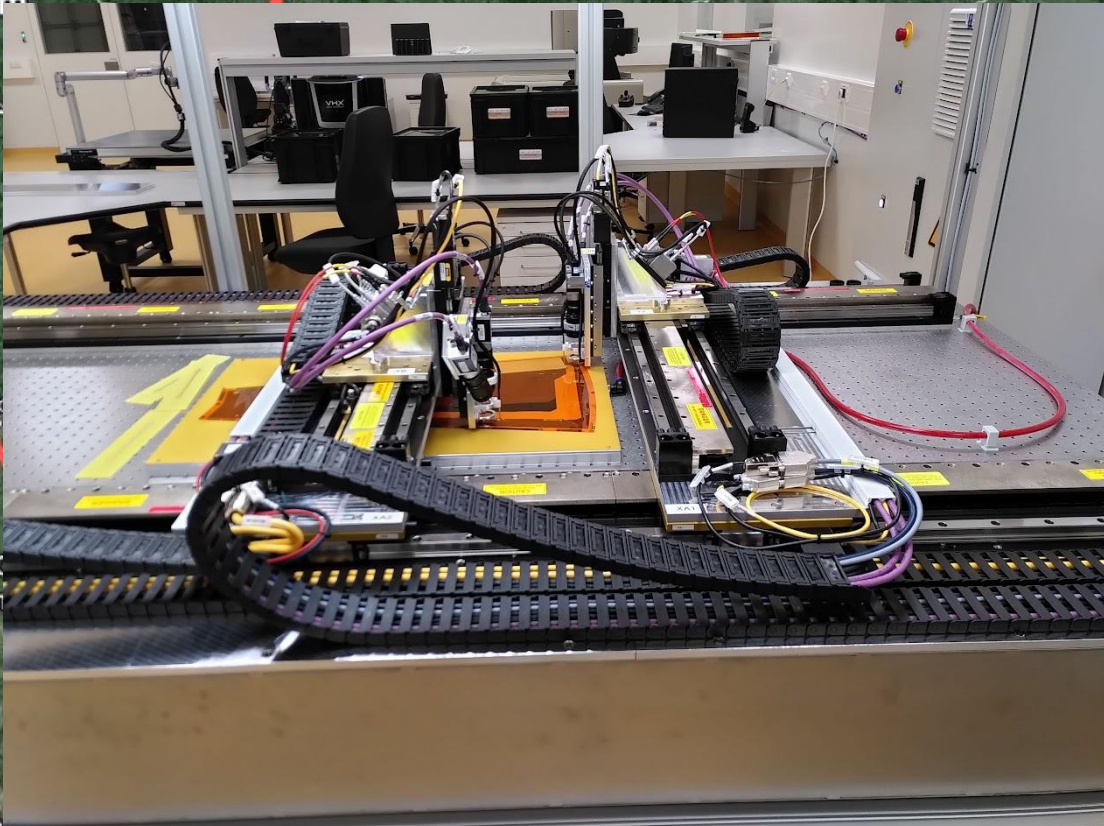
- Multijet SUSY search
- $E_T^{\text{miss}}$  trigger software manager

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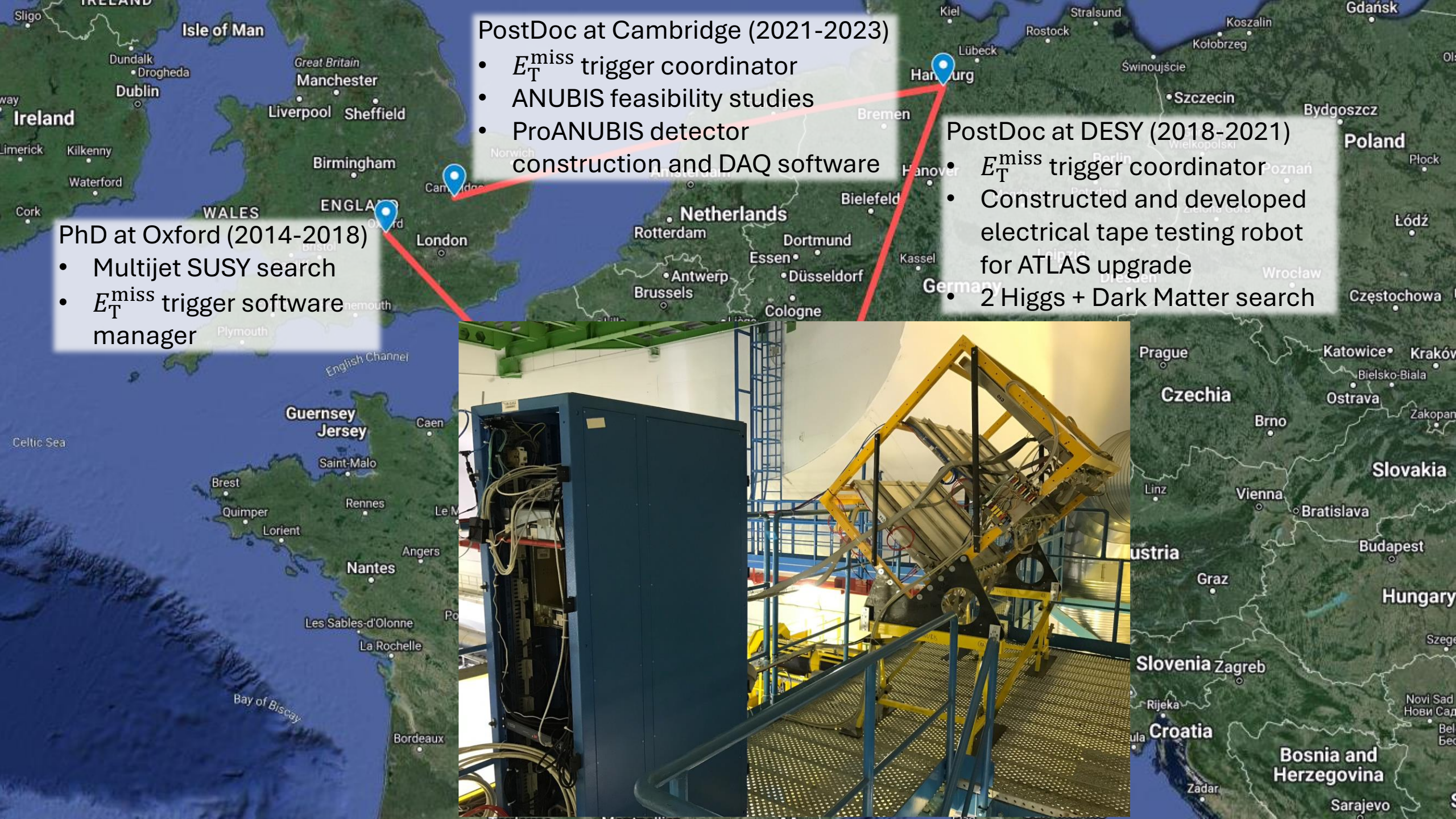
- Multijet SUSY search
- $E_T^{\text{miss}}$  trigger software manager

PostDoc at DESY (2018-2021)

- $E_T^{\text{miss}}$  trigger coordinator
- Constructed and developed electrical tape testing robot for ATLAS upgrade
- 2 Higgs + Dark Matter search







### PostDoc at Cambridge (2021-2023)

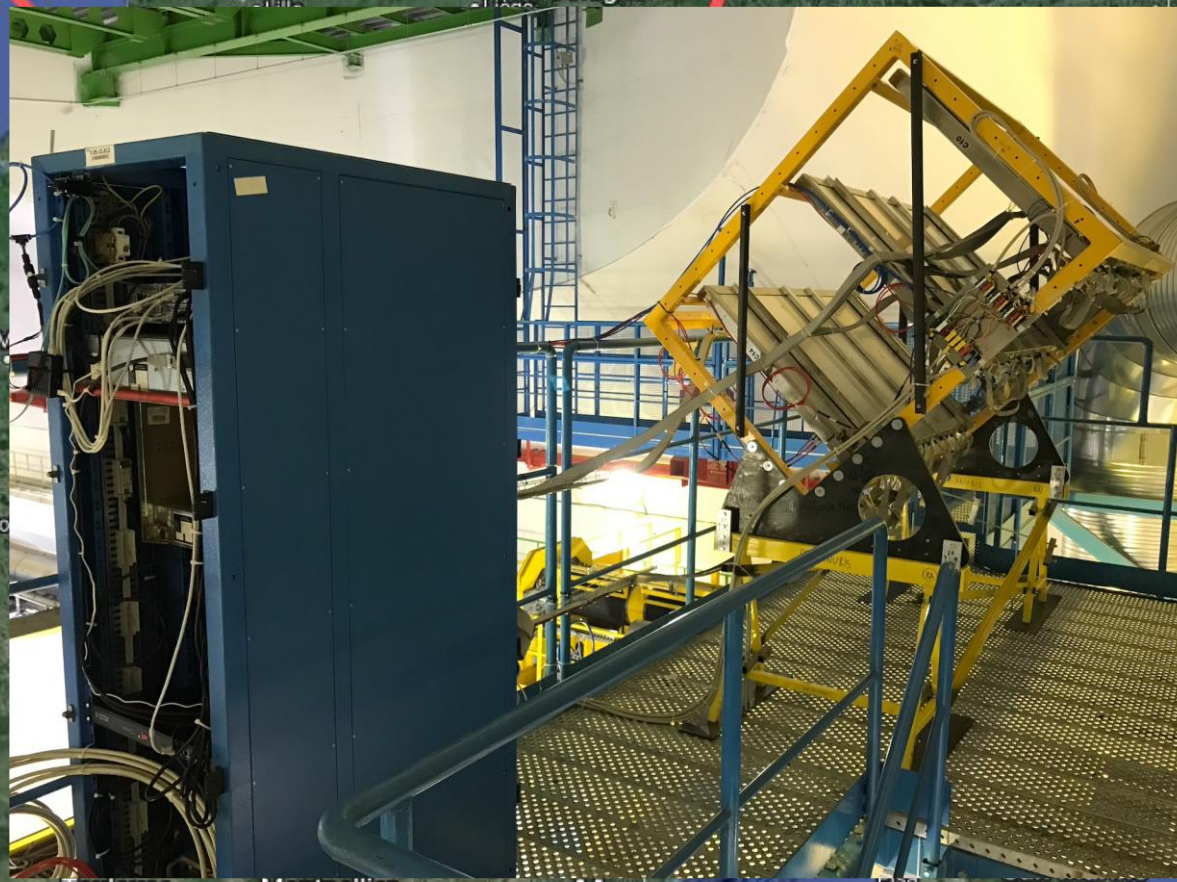
- $E_T^{\text{miss}}$  trigger coordinator
- ANUBIS feasibility studies
- ProANUBIS detector construction and DAQ software

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Senior Software Engineer at MathWorks  
(Oct 2023 – present)

- Part of the parallel computing team working on the infrastructure to run computations on multiple MATLABs in parallel
- Developing mostly in C++ and MATLAB



Alix Fell



# Alix Fell

2017-2021:  
The University of Sheffield  
The ATLAS Collaboration

2021 - 2022:  
Tutoring

2022 - Present:  
Multiverse



EUROPEAN ORGANISATION FOR NUCLEAR RESEARCH (CERN)



Phys. Lett. B. 816 (2021) 136190  
DOI: 10.1016/j.physletb.2021.136190



CERN-EP-2020-165  
16th March 2021

## Observation of photon-induced $W^+W^-$ production in $pp$ collisions at $\sqrt{s} = 13$ TeV using the ATLAS detector

The ATLAS Collaboration

This letter reports the observation of photon-induced production of  $W$ -boson pairs,  $\gamma\gamma \rightarrow WW$ . The analysis uses  $139 \text{ fb}^{-1}$  of LHC proton–proton collision data taken at  $\sqrt{s} = 13$  TeV recorded by the ATLAS experiment during the years 2015–2018. The measurement is performed selecting one electron and one muon, corresponding to the decay of the diboson system as  $WW \rightarrow e^+\nu\mu^+\gamma$  final state. The background-only hypothesis is rejected with a significance of well above 5 standard deviations consistent with the expectation from Monte Carlo simulation. A cross section for the  $\gamma\gamma \rightarrow WW$  process of  $3.13 \pm 0.31(\text{stat.}) \pm 0.28(\text{syst.}) \text{ fb}$  is measured in a fiducial volume close to the acceptance of the detector, by requiring an electron and a muon of opposite signs with large dilepton transverse momentum and exactly zero additional charged particles. This is found to be in agreement with the Standard Model prediction.





# My Journey From Academia to Industry

## Academia

- Studied photon induced WW boson production at the ATLAS collaboration
- Author qualification project in electron ID
- Taught a first year undergraduate maths course as part of my teaching scholarship

## Skills Gained

- Data handling and analysis
- Statistics
- Coding - python, C++, linux systems
- The ability to ask questions
- The ability to articulate complex concepts
- Problem Solving

## Industry

- EdTech Scale-up organisation
- Fast paced environment
- Teaching and Coaching digital skills
- Refining processes to work at scale
- Aims to unlock economic opportunity through learning

James Grundy

# Pathway to my Current Career

**2014 - 2018:** MSci in Physics

**2018 – 2022:** DPhil on ATLAS searching for HH → bbbb

Unsure if academia was the right for me long-term.  
Always interested in politics and public service. Heard  
good things about the Civil Service.

**Spring- Summer 2022:** [UKRI Policy Internship](#)  
House of Lords JHA Select Committee

**Autum 2022:** Civil Service Fast Stream

**Now:** Second year OR Fast Streamer at DWP



# My Career as a Civil Servant

Currently, I'm a second year on the Operational Research stream of the [Civil Service Fast Stream](#).

The Fast Stream is the graduate scheme for future leaders in the Civil Service, offering a range of roles across multiple departments. It held the No. 1 spot on The Times' list of Top Graduate Employers from 2019 – 2022.

I'm on the Operational Research scheme ran by [GORS](#) (Government OR Service). In GORS, we use scientific and mathematical techniques to find solutions to complex problems and improve decision making in government.

In my first year, I worked on the Work and Health Programme, the biggest employment programme for people with disabilities in the UK.

- Created regular performance reports to evaluate the performance of the programme.
- Acted as an analysis consultancy, creating ad hoc analysis to assist colleagues, e.g., forecasting the future number of attendees on the programme.

In my second year, I worked on policies to help people in work increase their earnings.

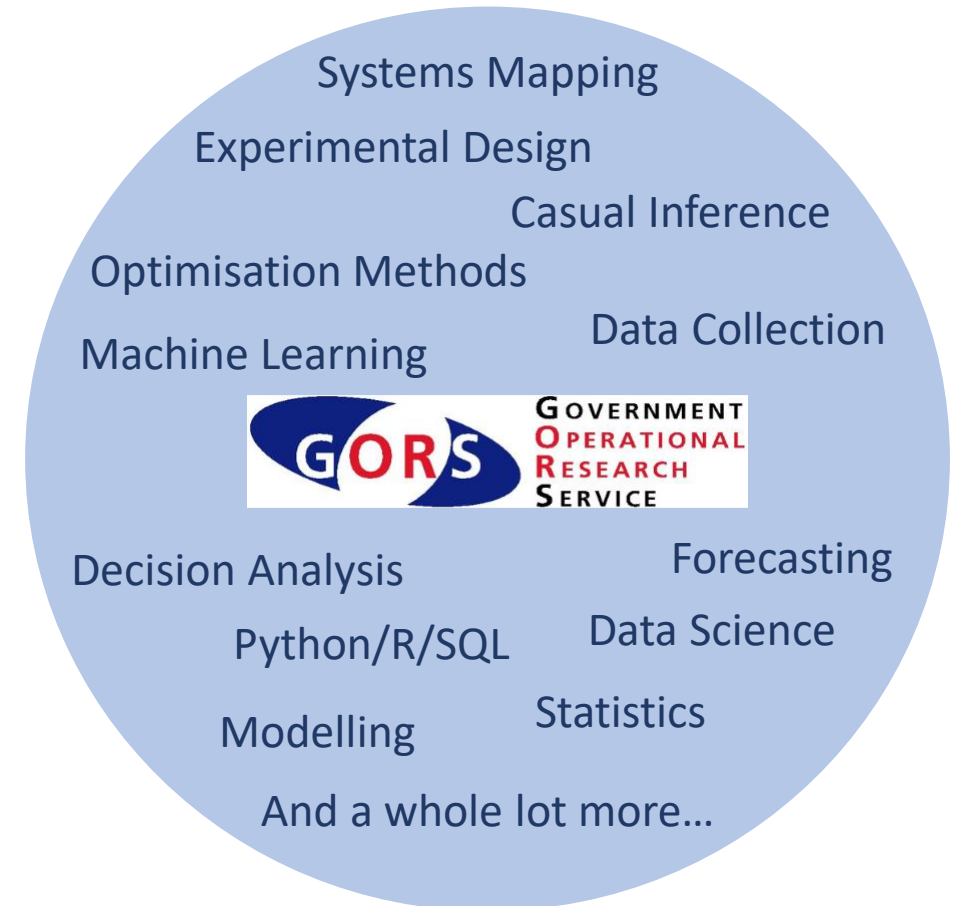
- Conducted statistical analyses to evaluate the impact of Job Centre interventions.
- Provided analysis to support policy writers in making evidence-based decisions.

Next, potentially health at MoD, trade with NI at DEFRA, data science at DBT – we'll see!

For any more info, feel free to drop me a line - [James.Grundy@dwp.gov.uk](mailto:James.Grundy@dwp.gov.uk)



Civil Service  
Fast Stream





Martha Hilton

# My path through academia

- ▶ Studied physics at Imperial College London.
- ▶ I did my PhD at the University of Manchester on charm physics at LHCb
  - ▶ Got involved in many diversity and early career initiatives including sitting on the Early Career Gender and Diversity committee for the LHCb collaboration.
- ▶ Stayed at Manchester for a Post Doc for one year, then decided to leave academia and pursue a career in the public sector....



# My career in the public sector

- ▶ After my undergraduate I worked for the social leadership charity **RECLAIM** in Manchester which works with working class young people on a leadership and development program.
- ▶ After finishing my Post Doc I worked as a **Senior Data Analyst** for the **Institute of Physics** until recently.
- ▶ I have just taken a position as **Senior Analyst** at **UKRI**.
- ▶ As a state school educated woman in physics I have an active commitment to equality and diversity within the subject.



UK Research  
and Innovation



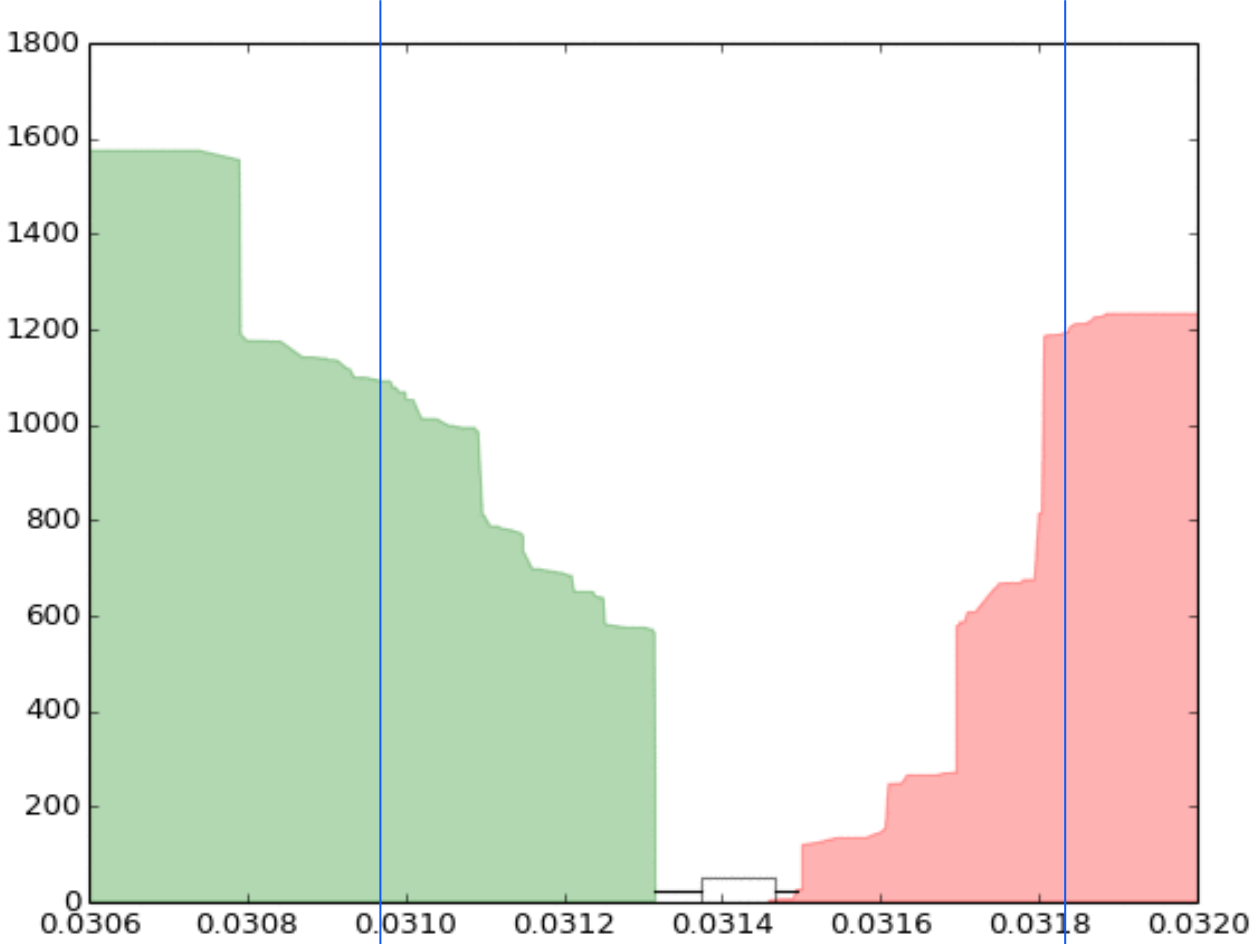
Mike Nelson

# Life after HEP: statistics and the markets

Mike Nelson,  
Head of Spot & Futures Quantitative Research, Keyrock

Keyrock

*Where I am: machine learning, statistics, and algorithmic trading*



2018-10-22T22:48:40

**Keyrock**

-> **The game:** building mathematical models to understand how prices move.

-> Working with computer scientists, physicists, mathematicians to turn models into **algorithmic trading strategies.**

-> **Trading currencies and cryptocurrencies** over millisecond - several hour time horizons.

## *How I got there*

**DPhil:** SUSY searches and hadronic jet physics on ATLAS

- Got interested in thinking about statistics more deeply
- > Introduced to the ideas of machine learning
- > Knew nothing about finance, biology etc

**PostDoc:** Knew I wanted to apply statistics to new problems

- > Became interested in economics & the markets

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**Quantitative researcher** at Winton Capital

- Large hedge fund, scientifically-driven
- > Statistics to forecast trends in commodities, currencies, rates, equities over days/weeks/months
- Wanted to explore one other topic before “deciding” ...

**Keyrock**



## *How I got there*

**PostDoc take two:** Computational cancer biology/research fellowship

→ Statistical techniques applied in finance, now for cancer growth

-> Maths models of gene regulation to understand how the immune system responds to lung cancer

-> Decided ultimately problems in economics appealed most to me

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**Quantitative researcher again!**

→ Voltz Labs: small trading firm, got to experience how a research team is built. Statistics in fixed income and cryptocurrency markets

→ **Keyrock: algo trading firm**, a fascinating mix of statistical research and computer science to comprehend and trade the markets. Now leading a research team there.

**Keyrock**