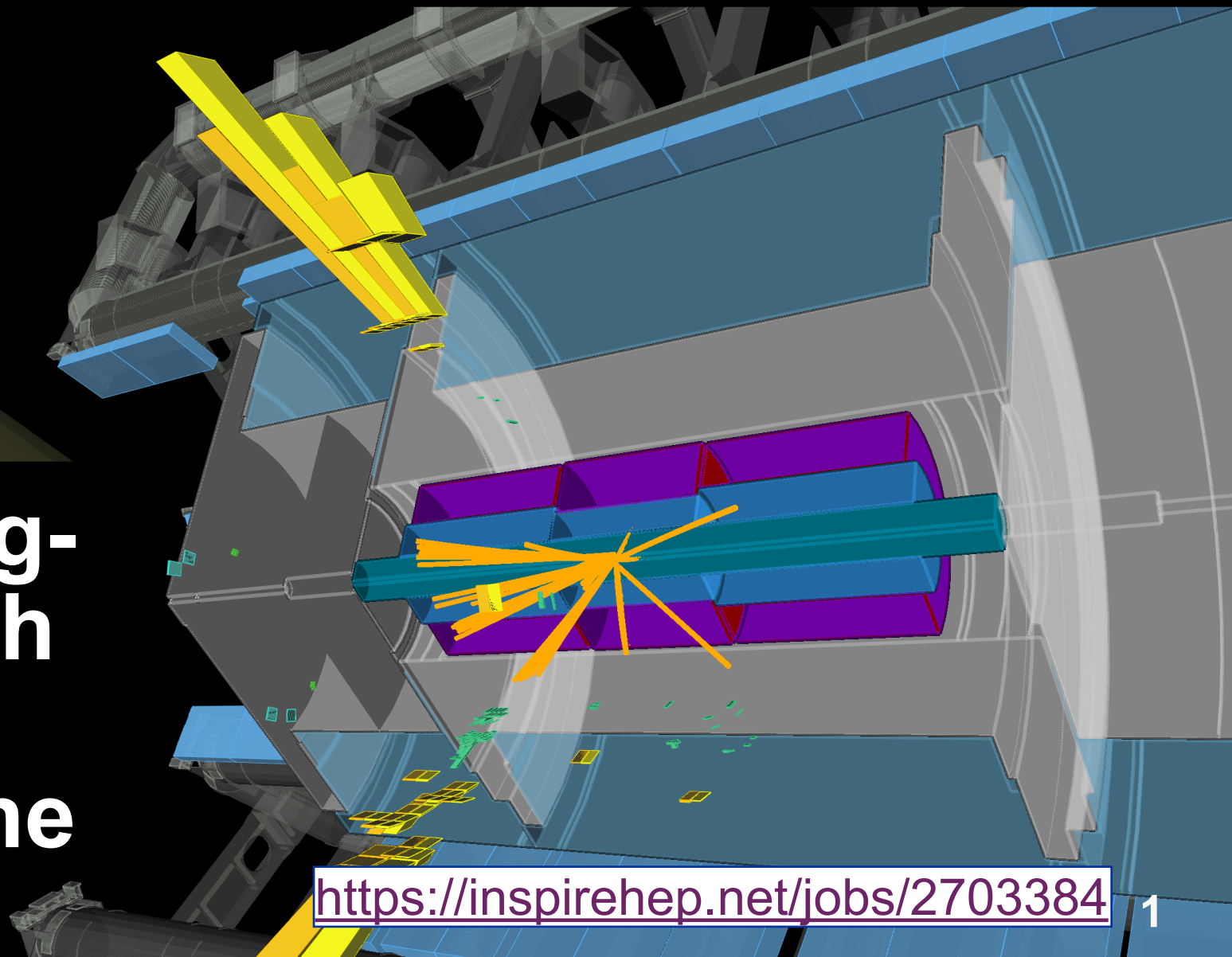


Louie Dartmoor Corpe  
(Laboratoire de Physique de Clermont)

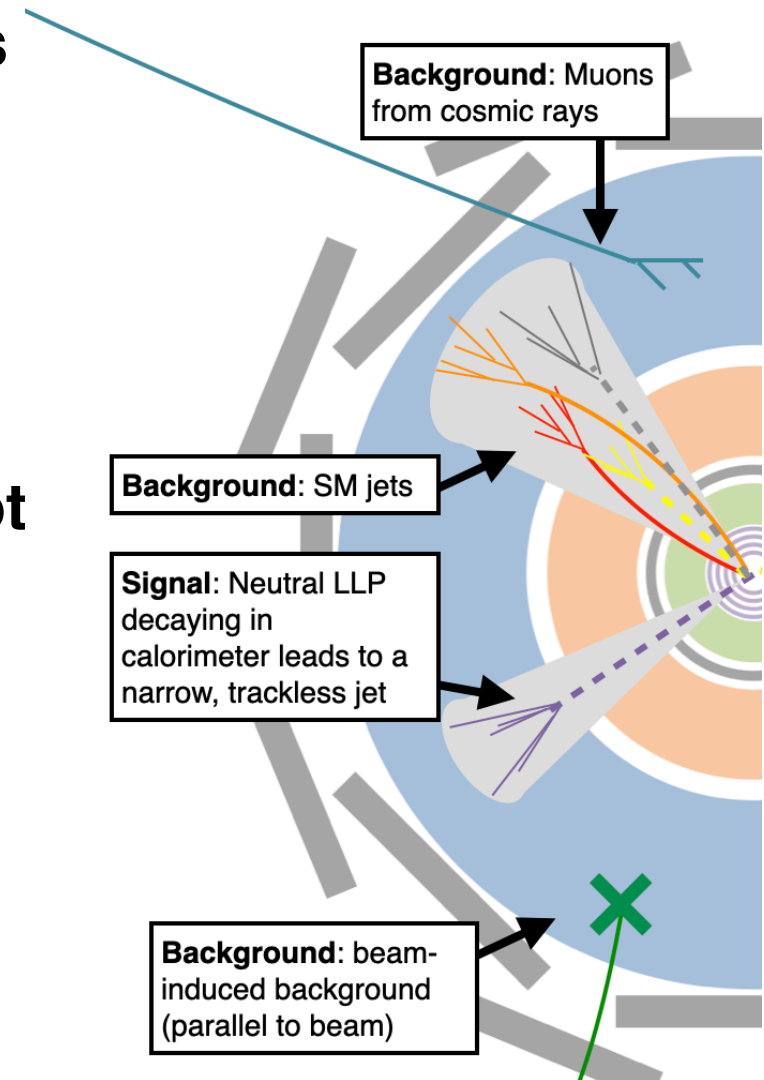
Searching for long-lived particles with ATLAS, and development of the HGTD upgrade



<https://inspirehep.net/jobs/2703384>

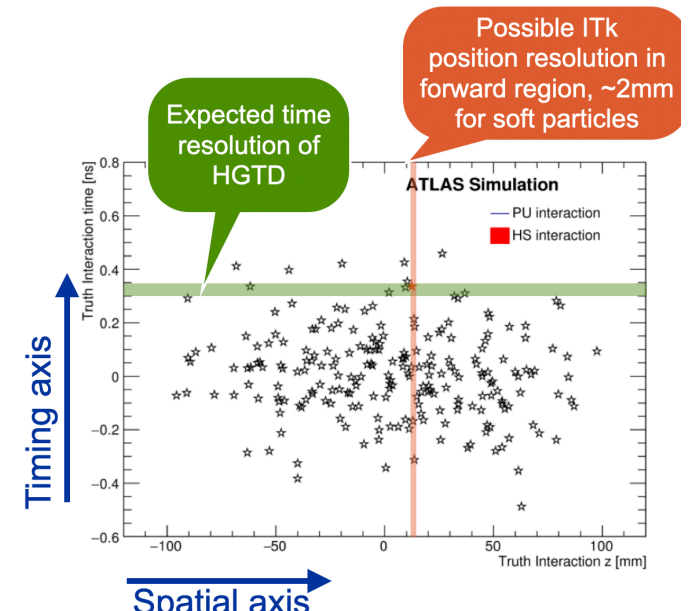
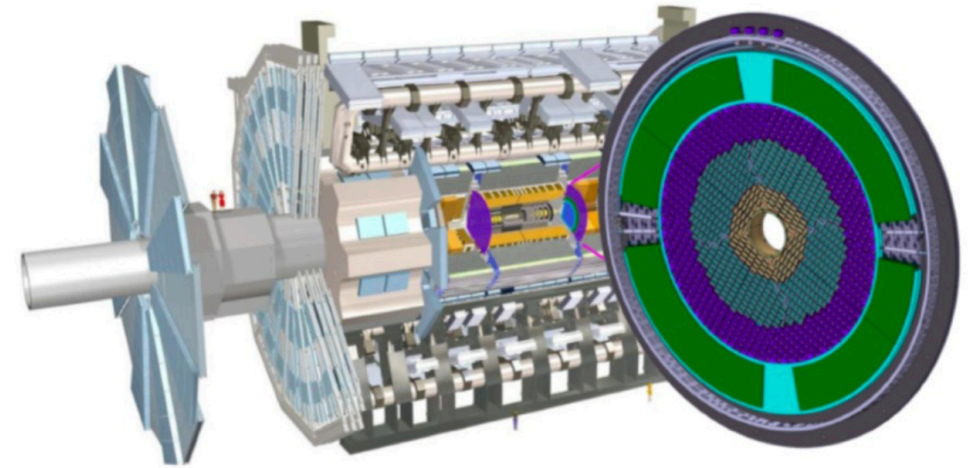
# The physics topic: Exotic long-lived particles

- After 10 years of searches at LHC, **no sign of "new physics"**
- Could it be that we are **looking in the wrong place?**
- For example, if new particle decays *inside* ATLAS or CMS, would often miss it using standard reconstruction
  - Exotic **long-lived particles** (LLPs) are in LHC's **blind spot**
- I am an **expert in LLP searches** (former ATLAS "unusual signatures" subgroup convener) forming a **growing team**.
- Together, we will make **groundbreaking searches for LLPs** in ATLAS electromagnetic and hadronic **calorimeters**.



# Instrumentation topic: High Granularity Timing Detector

- For High-Lumi LHC, ATLAS needs a **fast-timing detector in endcaps** reduce pileup
- **High Granularity Timing Detector (HGTD)** uses cutting-edge LGAD technology to give track **time resolution of  $\sim 40$  picoseconds (!!).**
  - Distinguish **pileup using 4th dimension: time!**
- We are building **the surface commissioning system**: test assembled detector before it is lowered into cavern.
- System will **evolve into full HGTD data acquisition system!**
- Important and visible part of upgrade programme!



# Laboratoire de Physique de Clermont (LPC)

- french national lab for HEP, astro, health applications ~ 150 people
  - Attached to CNRS and Université Clermont Auvergne (UCA)
  - **Founding member of ATLAS!**
- **ATLAS team in Clermont is 12 people:**  
4 students, 1 post-doc, 5 staff scientists, 2 lecturers/professors.
  - +1 student, +2 postdocs (**you!**) next year
  - Former postdocs ---> to CERN fellowships, CNRS positions...
- Physics involvements: di-Higgs, anomaly detection, **LLPs (you!)**
- Instrumental involvements: TileCal and **HGTD upgrade (you!)**
- Day to day, you would work closely with me and my LLP/HGTD team, will be in total me + 2 students + 2 postdocs (**you!**)



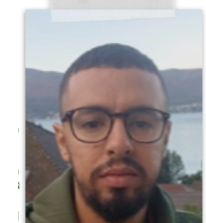
Louie Corpe  
(Junior Professor)



Valentina  
(post-doc)



You!  
(post-doc)



Abdelhamid  
(student)



New student!  
(starting 2024)

# Clermont-Ferrand (Job location)

- Town of **250 000 people** (40k students)
- "**20-minute city**", everything accessible by foot/bike/tram. Very affordable city!
- At foot of famous "**Puy de Dôme**" where Blaise Pascal did research on pressure
- At heart of stunning "Chaîne des puys": great hiking!
- **3h drive to CERN** (LPC has a fleet of cars for this purpose)
- 3.5hr direct train to Paris
- **Friendly and welcoming group!**



# Contract details And job profile

- **Contract length:** 2 years + possible extension 1yr
- **Salary guide:** 2 800 -- 3 500€ /month depending on experience.
- **Contract start:** Flexible: aiming for spring 2024
- Generous **holiday allowance**
- **French not required**, lessons available!
- **Deadline:** Nov 1st (or until filled!)  
<https://inspirehep.net/jobs/2703384>

- What I'm looking for:
  - **PhD in particle physics** or related topic
  - Willingness to do both **analysis** and **instrumentation**
  - Existing DAQ knowledge (especially FELIX) a bonus!

Interested?  
*Let's talk!*

Contact me on  
[lcorpe@cern.ch](mailto:lcorpe@cern.ch)  
to organise a zoom chat