

# Roadmapping workshop for software for (theoretical) particle physics

Towards a Collaborative Computational Project  
in Theoretical and Experimental Particle Physics  
(CCP-TEPP)

**Welcome!**

# Fire safety

- Fire alarm test at 0855 on Wednesday
- No fire drills scheduled
- If the alarm sounds not at 0855 on Wednesday, please evacuate
  - Follow the instructions on the blue FIRE ACTION notices posted throughout the building.
  - Exit the building using the signed FIRE EXIT routes, closing all doors behind you.
  - Do not use the lifts.
  - Assemble in the car parks well away from the JCMB main entrance area and access road
  - Do not re-enter an activated zone, signalled by flashing beacons at the zone boundary
  - Do not re-enter the building until given all clear by Assembly Point Controller, Fire Brigade Officers or by public address system
  - Do not use your mobile phone until you have safely evacuated the building.

# Why are we here?

- Aims of the project to form CCP-TEPP:
  1. Produce a roadmap for software in particle physics in the UK (2025)
  2. Make progress towards delivering this roadmap (2026)
  3. Produce an updated roadmap based on this progress (late 2026)
- Today's workshop contributes to point 1
  - Second workshop in June will focus on experimental roadmap
  - Knowledge Exchange event in September will bring together both groups

# Agenda Tuesday

- 1410: Stephen Longshaw: Introduction to CoSeC and the CCP programme
- 1420: Lightning talks introducing UK lattice collaborations
- 1440: Discussions
- 1530: Coffee
- 1600: Discussions
- 1645: Wrapup
- 1700: Finish, move to dinner
- 1800: Dinner: Howies, Waterloo Place

# Discussions

# Current state of play

- What software currently drives your usage on HPC resources?
- What features of that software do you rely on?

# New requirements

- What features will you need in the next five years?
- What other missing features or lack of functionality limit your research?



# Moving forward

- What effort would be needed to deliver the features discussed before coffee?
- How could this effort be funded?

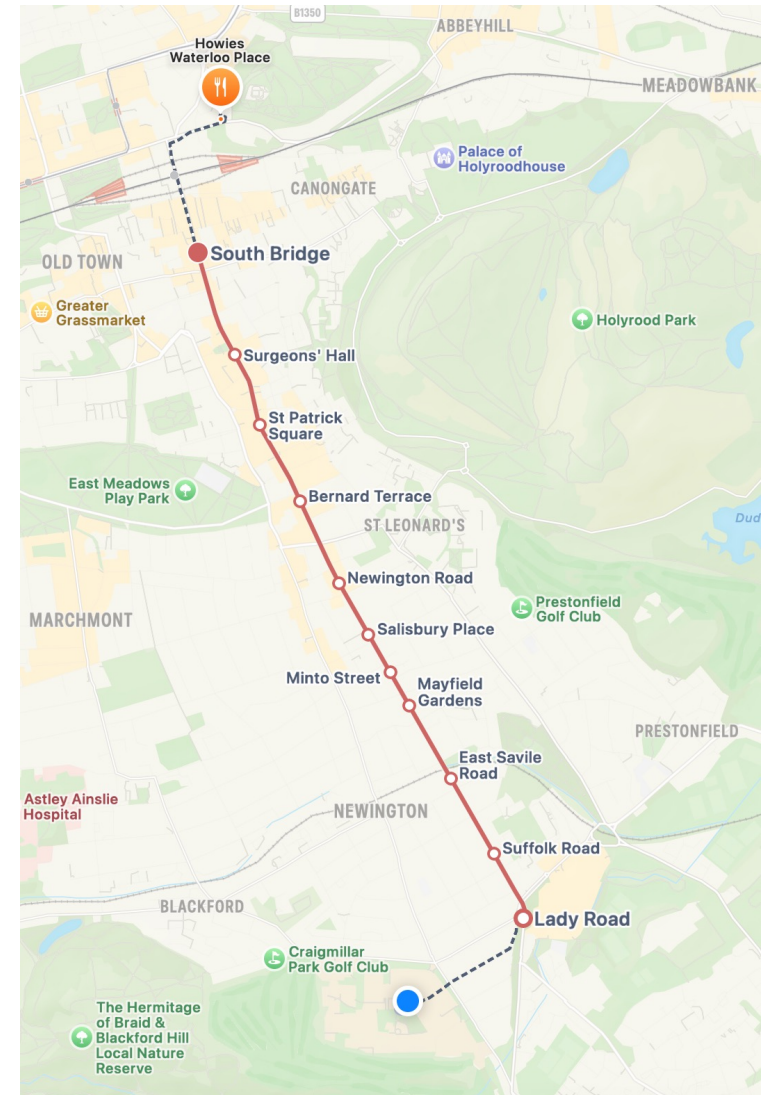
# Bridging gaps

- Do other lattice codes already implement the functionality discussed earlier?
- If so, what barriers are there to adopting it directly from there?

Wrapup day 1

# Dinner

- Howies Restaurant, Waterloo Place
- 6pm
  - 59-minute walk
  - 16-minute bus (plus 20-minute walk)
- Need to finish by 7:30
  - Please arrive promptly!
- Two courses are paid by us
  - If you requested three courses, please pay £8.40
- We cannot reimburse expenses for alcoholic drinks



# Agenda Wednesday

- 0900: Discussions
- 1030: Coffee
- 1100: Discussions
- 1215: Wrapup
- 1230: Lunch and departures

# Data

- Does your work comply with UKRI/STFC/DiRAC data management policies?
- What resources would you need to be able to comply?
- What resources do you currently have?

# Reproducibility

- If someone wanted to reproduce your work, using only what you have published, how much human/computer time would it take them?
- What resources would you need to reduce these numbers?

# Code quality

- How documented is your code? How up to date is the documentation?
- What testing is done? What coverage is there? Is this automated in CI?
- What other quality checks are done? Formatting, variable name linting...
- How much effort would be needed to move the needle?



# People and skills

- What skills are missing in your team to progress towards what we've discussed?
- How can those skills be brought in? New roles, training for postdocs, expanded curriculum for PhD students...?

# Hardware

- What systems are you using actively?
- Is the UK ecosystem (e.g. DiRAC) delivering what you need?
- What gaps are there?

# Looking wider

- What interaction do you have with experiment? (E.g. data sharing, code sharing, collaborative projects)
- Are there other communities that we are, could, or should be sharing knowledge or tools with? (E.g. condensed matter theory?)
- What barriers are there to this?

Wrapup day 2

# Next steps

- We will write up a tidy version of the notes from the last day
- Similar notes will be produced from the June event
- We will combine these documents and circulate a draft over the summer
- Volunteers for contributing to writing are welcome!

# Expenses

- You will shortly receive an email with a claim form
- Please fill it out and submit receipts