~~Accelerator R&D~~
Future e+e-

What we should spend more time on…

Disclaimer

As usual, I am not the expert, do have a chat with Chris/Fergus if you're keen on details and/or history of things!

I spend 100% of my time on ATLAS Tracker Assembly, and reasonably fractions on Testbeam/CMOS/Scrolls - this just hasn't had enough (integrated) time yet

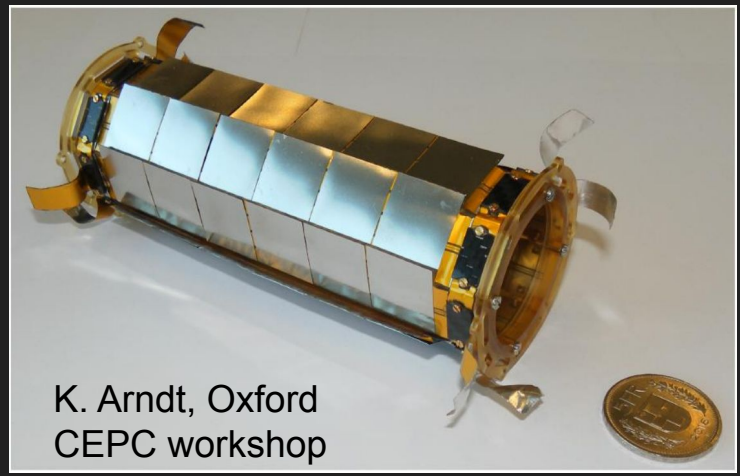
Consider it a taster, very incomplete, and let's see where we are in **2-3 years** from now

What's out there?

- E+e-
  - Circular: Lumi vs. Energy
    - FCC-ee (Gaining momentum)
    - CEPC (Small community)
  - Linear: Energy vs. Lumi (Large existing UK community, mostly physics/tracker/calo)
    - ILC
    - CLIC
    - Cool Copper Collider
- Other things
  - Hadronz? (FCC-hh, CPPC) Former has massive interest, but is about 40 years (+20,-0) out
  - Unbalanced stuff? (LHeC, FCC-eh)
  - Muonz? (That thing doesn't even have a fine acronym yet, or does it?)

Detector R&D

- Let’s not talk about hh - yet
- E+e- is, in many ways, a solved problem:
  - We know how to build detectors for that environment (radiation, rate)
  - We need to look closely at existing detector concepts (e.g. ILD/SiD) to adapt them to state of the Art (Strip Tracker …)
- What we need for e+e-:
  - Work towards final chip designs, currently available designs are tailored to other things (potential LHC detector upgrades, other stuff)
  - Finalising concepts like readout and cooling, infrastructure
    - Remember these are detectors that deliver precision, not sheer rate!
    - Think Mu3e tracker, folded kapton support structure with He gas cooling!



What is happening (in the UK)

- (UK) ILC has irregular catch-ups, high level, about 10 people
- (International) SiD community is meeting bi-weekly-ish, usually about 5-10 people
- FCC UK:
  - Various UK contact people have been chosen
  - First Meetings happening next week:
    - 5th, Oxford, e+e- (including Linear): https://indico.cern.ch/event/1164987/
    - 8th, Manchester, hh: https://indico.cern.ch/event/1147914/

What is happening at RAL?

- 0.0 FTE on future collider work
- However, EIC is the closest thing to working on future projects, just ramping up
  - We are NOT involved with Alice ITS3 developments, but EIC piggybacks on that, so … we are
- LHCb has lined up a large scale CMOS tracker (MightyTracker) for late this/early next decade
- Involvement with UK CEPC group trying to get to working prototypes on the basis of ATLASPix3 chips
  - No actual funding here, all based on bits and bobs that we can scrape up

What should happen at RAL

- Think large scale!
- What infrastructure is useful to set up for future accelerator and detector development?
  - DL supposedly has the accelerator part under control, but there can still be things to be looked at:
    - Simulation setups, in particular MDI?
    - Irradiation setups/test facilities?
- What part do we want to play in it?
  - Dave wants DAQ, we know that
  - Myself/Fergus would love to play a part in Tracker development (But has the UK got, what it takes?)
  - What about PID? (Antonis++)
  - What about using our TD facilities for developing interesting mechanical structures?
  - Where do we think we can **lead**?
- What about Physics?