
CALICE: Options for the future

Paul Dauncey

The assumptions used here

- STFC Council will not reverse the **ILC decision**
 - Janet specified we should assume this for today
 - If not a correct assumption, then we are back to the **OsC document**
- We can **retain staff** (specifically RAs) for long enough
 - This is critically dependent on being told the funding profile **early enough**
 - People read the ILC statement in the DP over a month ago; the RAs believe they may be out of a job on April 1
 - Relying on rumours is very poor; we need a very clear statement on how long the grant-funded RAs will be able to stay on asap
 - This means confirmation that they will be given six months notice and an indication as to when this notice will be issued
 - I note as one of the ILC grant Spokespeople, I have still had **zero official notification** of any grant withdrawal from STFC
- There is not a **blanket ban** on detector R&D for “future colliders”
 - Proposals to continue the non-ILC-specific aspects of this work would not be rejected out of hand but would be subjected to rigorous peer review
 - Due to big uncertainties (mainly in levels of RG and PPD staff available), it will be unrealistic to expect any proposal (if granted) to start **before FY09/10**

Our outlook on FY08/09

- We assume we have to **squeeze** as much as possible
 - While not completely wasting the **£2.5M** already spent in the last 5 years
 - The idea is to define a programme for FY08/09
- Some parts of the programme are **generic**
 - Can be applied to more than just the ILC. These stand some chance of being funded from **new proposals** in the future
 - Hence for now we want to keep them going (if required, at a lower level than agreed by the original peer review process) until they can be revived
- Some parts are close to some major **breakpoint**
 - E.g. publishable results coming within the next year
 - These could be reduced to the **minimum** but still at a level that publications could be produced so we reap some benefit of the UK investment
- Some parts have **UK responsibilities** which cannot realistically be handed off
 - Would seriously damage the **UK reputation** (further than already done) as an international partner
- We have third year **PhD students** who need to complete theses

WP1 minimal programme

- First **publications** of existing beam test data will be in 2008
 - **First paper** (led by UK RA) in internal review now
 - Several more based on 2006 data in the pipeline; 2007 data later in the year
 - UK people have contributed significant effort to the analysis and lead several areas
 - Both the Physics and Analysis Coordinators are from the UK
 - **Ridiculous** to stop this before publications are produced
- UK would normally be very active in future data-taking at **FNAL in 2008**
 - If really reducing to minimal contribution then must **cut back** here instead
 - Cannot stop working on **DAQ**; this would stop the whole CALICE beam test
 - Cannot hand off DAQ responsibilities; expertise is completely within the UK
- There is a danger we will not be able to **analyse** 2008 FNAL data
 - If no **travel funds or people** to do shifts, then this is a serious possibility
 - Also, analysis of data would mainly happen after FY08/09
 - May end up helping take data for which we cannot be authors when published

WP2 (and 4) minimal programme

- DAQ work is **generic**; wider than just linear colliders
 - E.g. discussions just starting with SLHC upgrade groups
- UK has **responsibilities** within EUDET collaboration
 - Building “technical prototype” calorimeters; UK responsibility to provide DAQ system and mechanics designs
 - EU funding legally requires **matching funds** so very tricky if UK cuts back
 - Academic effort may be able to be claimed to count as matching funds
- To get any benefit out, then need to **continue** within EUDET
 - Target resources towards the EUDET work to get **maximum** matching funds
 - RA effort clearly needed for testing and DAQ software development
 - Equipment spend is relatively low but is all needed in FY08/09
- May be able to **hand off** some responsibilities to EUDET colleagues
 - Movement of items on the interfaces and/or firmware/software most likely
 - Would all need to be **negotiated**; clearly UK loses influence
- A generic R&D **proposal** will need to be submitted to start in FY09/10
 - We will only complete the EUDET responsibilities by **late 2009**
 - Also want to allow membership of EUDET continuation, DetDev

WP3 minimal programme

- MAPS work is **highly generic**
 - Applications to many areas of STFC, not just HEP (let alone just ILC)
 - The **deep p-well** process in particular seems to have attracted a lot of interest
 - Second round of sensor fabrication still essential to prove concept
- We wish to continue as planned but if necessary, only way to reduce cost is to **slow down** and/or **descope**
 - Can do this for WP3 as it is a **UK-only** project
- Produce **second round sensor** without all required features (not “ILC-like”)
 - Much smaller and produced in **shuttle run** so significantly cheaper
 - Reduction in scope reduces engineering design effort required
 - Also have engineer at lower FTE so produce later than originally planned
 - Need RA and RAL PPD/SDG effort for testing; essential to keep this
- Could **finish** studies with second sensor within FY08/09
 - This would be a breakpoint where the project could close down...
 - ...but would be absolute waste of the **strong UK position**
 - Would expect to submit generic proposal to pick up in FY09/10

WP5 minimal programme

- What we were doing this all for; the eventual ILC **physics potential**
 - UK **unambiguously** leading PFA development worldwide
 - UK people also heavily involved in WW, ZHH, etc, studies, with more starting
 - Big issue; can we continue these studies in minimal scenario?
- There is no clear **breakpoint** to achieve in the next year
 - EDRs (and LoIs?) potentially delayed so **longer-term commitment**
 - If LoIs still submitted in late 2008, then this could be a breakpoint...
 - ...but then would stop afterwards; not really what “Intent” means
- **UK leadership** in PFA, but no “responsibility” as no formal structure yet
 - UK **withdrawal** will slow down worldwide effort
- This work could easily be **broadened** to include other CM energies
 - Generic in the sense of ILC, CLIC and even $\mu\mu$ colliders
 - To continue, would have to assume a **new proposal** could be approved
- Large **UK investment** and **high profile** in this area
 - Real danger of this all being wasted

Summary

- We have considered a **minimal programme** for FY08/09
 - We've squeezed ourselves to the limit
 - We are really at rock bottom for quite important items
 - We are dropping things where significant UK effort has been invested
- We have to assume there will be some possibility of **future grants**
 - Proposals for generic R&D projects need to be submitted, and hopefully approved, to support this work after FY08/09
 - If these are not available, then prospects of benefitting from UK investment will be extremely bad
- We do **NOT** consider this level as a reasonable outcome
 - This is the absolute limit of last resort