Final CALICE OsC meeting: Status and summary of project

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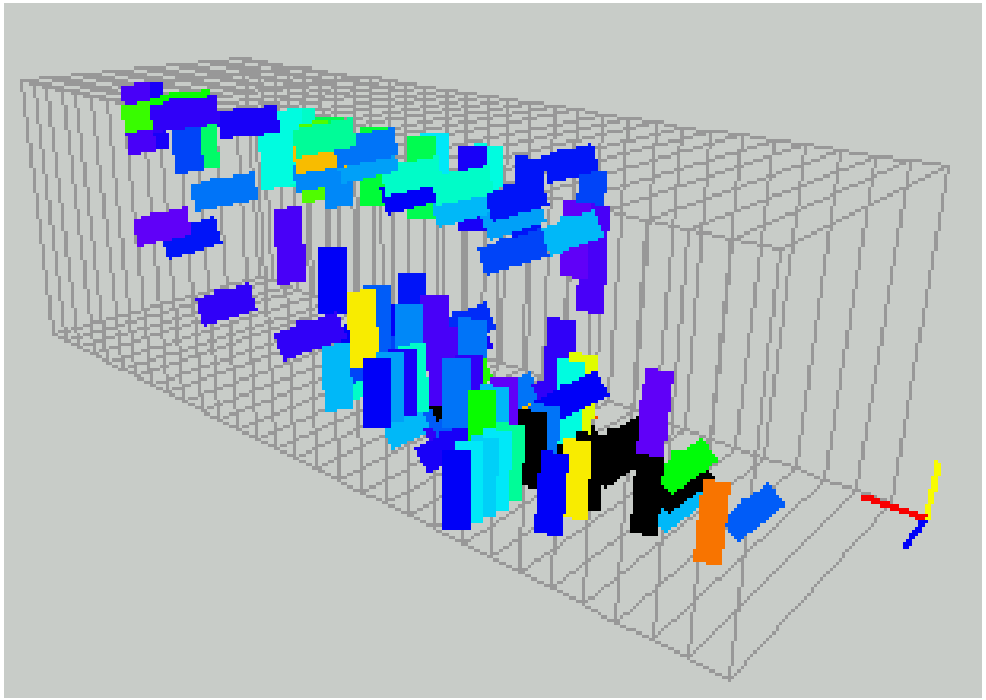
Brief update since report

- Completed Sept FNAL run with Sc-W ECAL
  - Integration with AHCAL went very smoothly
  - ~ 10^7 events
  - Should allow direct comparison with Si-W ECAL



- Next few journal papers getting closer
  - Si-W ECAL first analysis paper now in collaboration-wide review
  - AHCAL hardware paper now in collaboration internal review
- Second round sensor back from fabrication at RAL
  - Gluing and wirebonding starting today

UK WP status: where we are

- For each WP, will give some idea of
  - What we have achieved and hope to achieve in the remaining six months
  - What we had to cut short
  - What we are trying to carry forward
- Usual progress of a project is
  - Design, do, document
- Termination of the grant in the final year has had, and will have, a major impact on the last
  - Direct cutting of posts reduced the RA effort significantly
  - People are looking for alternatives
- Significant risk of not producing conference talks and papers before the end of the grant
  - UK slower to get the basic science payback for the investment

WP1: Beam tests

- Regarded as extremely successful
  - More data than we expected
  - ~10^8 events for the Si-W ECAL and the AHCAL
- UK provided significant roles
  - Leadership of analysis work
  - Leadership and delivery of DAQ
  - Run coordinator for CERN
  - Analysis of data, including primary author of first CALICE paper
- Termination has resulted in
  - Possible loss of leadership in analysis
  - Restricted travel, and hence much reduced efficiency, for DAQ support
  - Reduced analysis effort; now concentrating on hadronic interactions in ECAL
- This work will not be supported by any of the future proposals
  - Any non-academic effort will disappear by March at the latest
  - Academic effort restricted to analysis coordination and DAQ support as "good citizens" but with no travel funding

WP2: DAQ

- Large amount of progress
  - Working versions of full DAQ hardware chain
  - EUDET collaboration gives testbed for concepts/hardware
- UK is dominating this effort
  - No other groups within Europe at this level; possibly true worldwide
  - Will complete EUDET DAQ hardware system by end of March
  - EUDET funded RA will continue DAQ software effort after this
- Termination has resulted in
  - Significant loss of RA effort for software and testing
  - Loss of some tasks, e.g. ECAL ASIC testing
  - Lack of funds to procure enough components for EUDET tests, pushing costs onto collaborators and giving the UK a reputation as an unreliable partner
  - EUDET funding has mitigated this to some extent
- DAQ proposal submitted to continue aspects of this work
  - Would provide funding to allow UK to deliver DAQ for technical prototypes
  - UK would remain leader in LC (and other) DAQ studies

WP3: MAPS

- Gone some distance towards establishing digital ECAL as a technique
  - First sensor designed, fabricated and tested
  - Digital ECAL performance estimated based on results
  - Second small sensor designed and fabricated
- Next step is to study real EM showers at high granularity
  - Use second sensor in DESY beam test, hopefully early 2009
  - Do statistical study of hit densities with various converter thicknesses
- Termination has resulted in
  - Significant loss of RA testing and simulation effort
  - Reduction of scope from large second sensor to small one
  - Major goal of fully reconstructing EM showers not possible
  - Proof-of-principle cannot now be done with available sensors
- Sensor proposal submitted which includes completion of these studies
  - Significant part is to design a large-size sensor and assemble an ECAL stack
  - Would allow direct resolution measurement of EM showers
  - Existence proof that digital ECAL is feasible

WP4: Mechanics

- Established techniques for large scale module assembly
  - Glue properties and QA
  - Module assembly using scalable methods
- Will complete the current studies by the end of March
  - Bring project to a sensible conclusion
  - Document what has been achieved
- Termination has resulted in
  - Reduction in effort due to people leaving
  - Dropping of studies of the ECAL end-of-module mechanics
  - Dropping of any further thermal flow studies
  - Dropping any significant studies on ECAL endcap design
- This work will not be supported by any of the future proposals
  - Will continue within CALICE/EUDET but outside of the UK
  - Loss of UK leadership following investment

WP5: Physics studies

- UK has made major contribution
  - Best performing PFA worldwide; benchmark for evaluating all others
  - Optimisation studies for ILC detector concepts
  - Physics sensitivity studies
- Major goal by end of grant is detector concept LoIs
  - LoIs are to be submitted in March 2009
  - UK will provide sections to both ILD (DAQ, PFA, physics studies) and SiD (MAPS, PFA)
- Termination has resulted in
  - Reduced RA effort throughout all aspects of this work
  - Major impact on morale as seen to be “least generic” area of work
  - Only students, RAL and academic effort remaining
- Proposal submitted to continue PFA work
  - Already approved by PPRP before ILC cuts but stalled
  - If not approved, only academic effort on PFA will continue, at some low level