A UK perspective on the Linear Collider

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Background and Context

- UK particle physics community has strong interest in Linear Collider
- Top priority 'beyond LHC'
- PPARC invested VXD (3.5ME) and calorimetry (1.4ME)
- PPARC + CCLRC investing c. 16ME in Collider R&D 2004-07 in the area of the Beam Delivery System: 14 UK institutes are involved
- Aiming to build a strong, coherent design team and to prepare UK funding agencies for a significant UK LC contribution
- Collaborating w. European partners via 'Framework 6' programme:
  'ELAN' LC 'network activity' to facilitate interactions
  'Eurotev' LC 'design study' (in preparation)

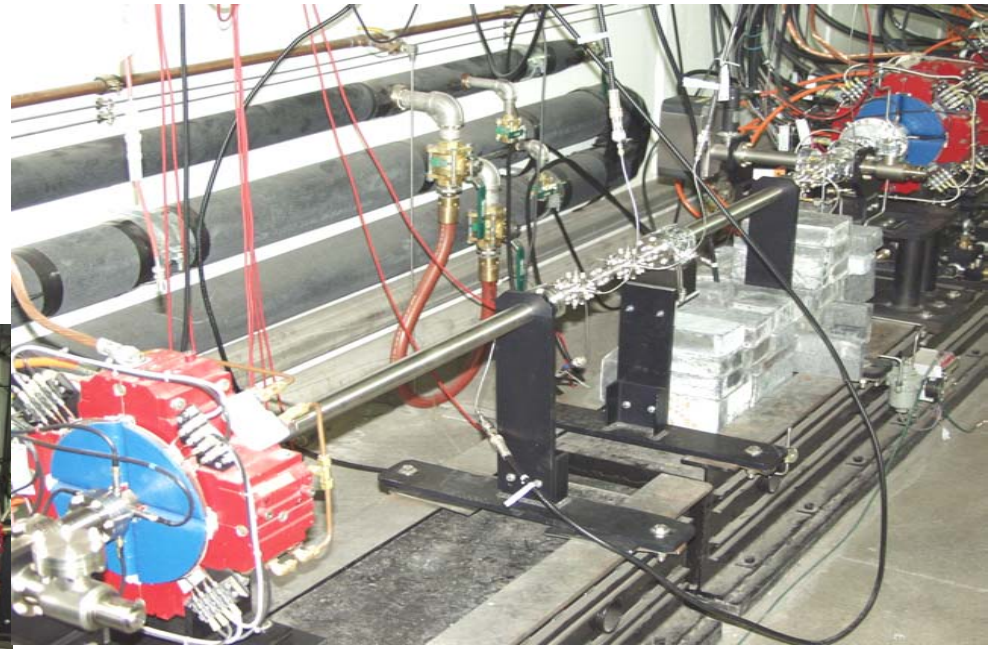
LC-ABD Collaboration

- Abertay
- Bristol
- Birmingham
- Cambridge
- Durham
- Lancaster
- Liverpool
- Manchester
- Oxford
- Queen Mary, Univ. London
- Royal Holloway, Univ. Of London
- University College, London
- Daresbury and Rutherford-Appleton Labs;
  spokespersons: Blair, Burrows

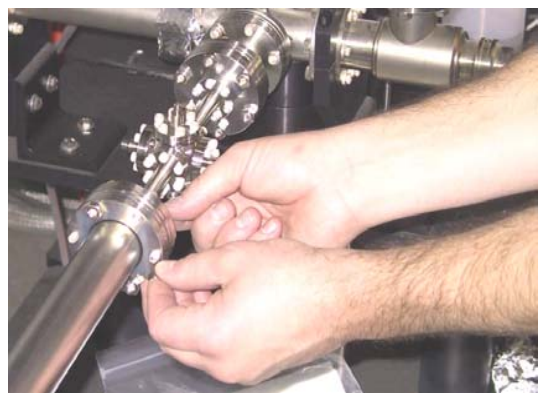
- 41 post-doctoral physicists (faculty, staff, research associates) + technical staff + graduate students

Intra-train Feedback prototype at SLAC NLCTA

Dipole and kickers



Advanced BPMs



Laserwire Beam Size Monitor (DESY/PETRA)

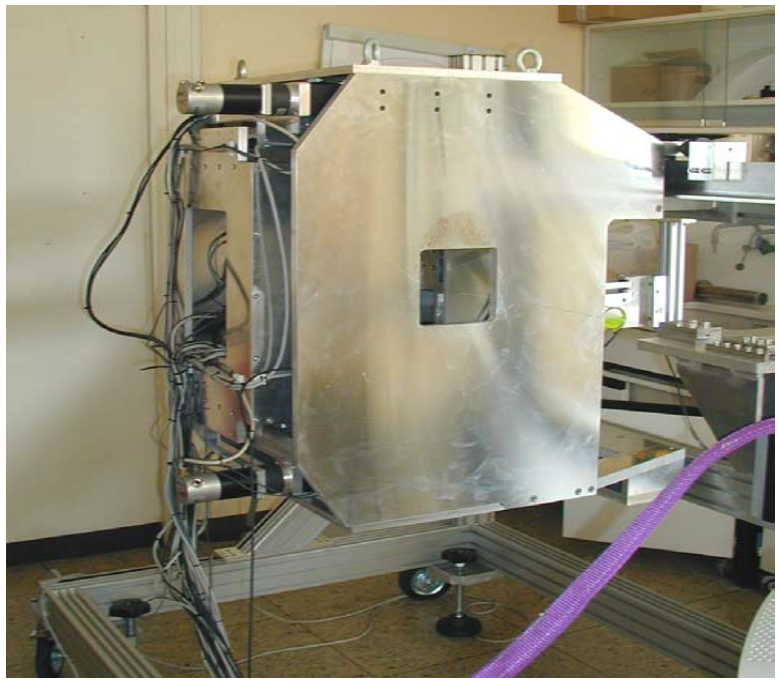
Prototype Survey-car System (DESY/TTF)

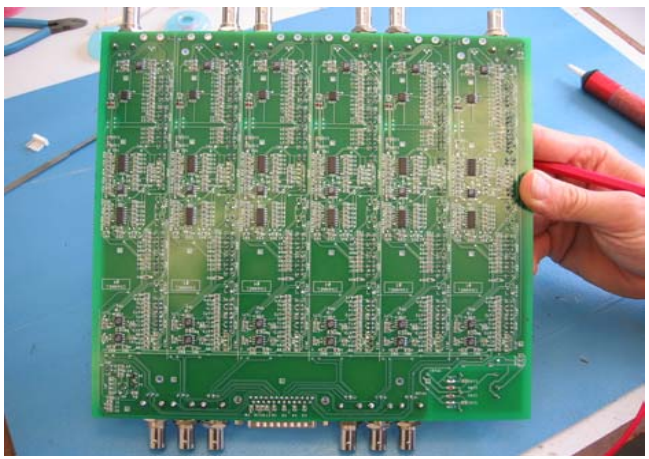
Prototype survey car:

2004: Single-car sensor

2005: 3-car prototype deployed in dedicated 70m tunnel

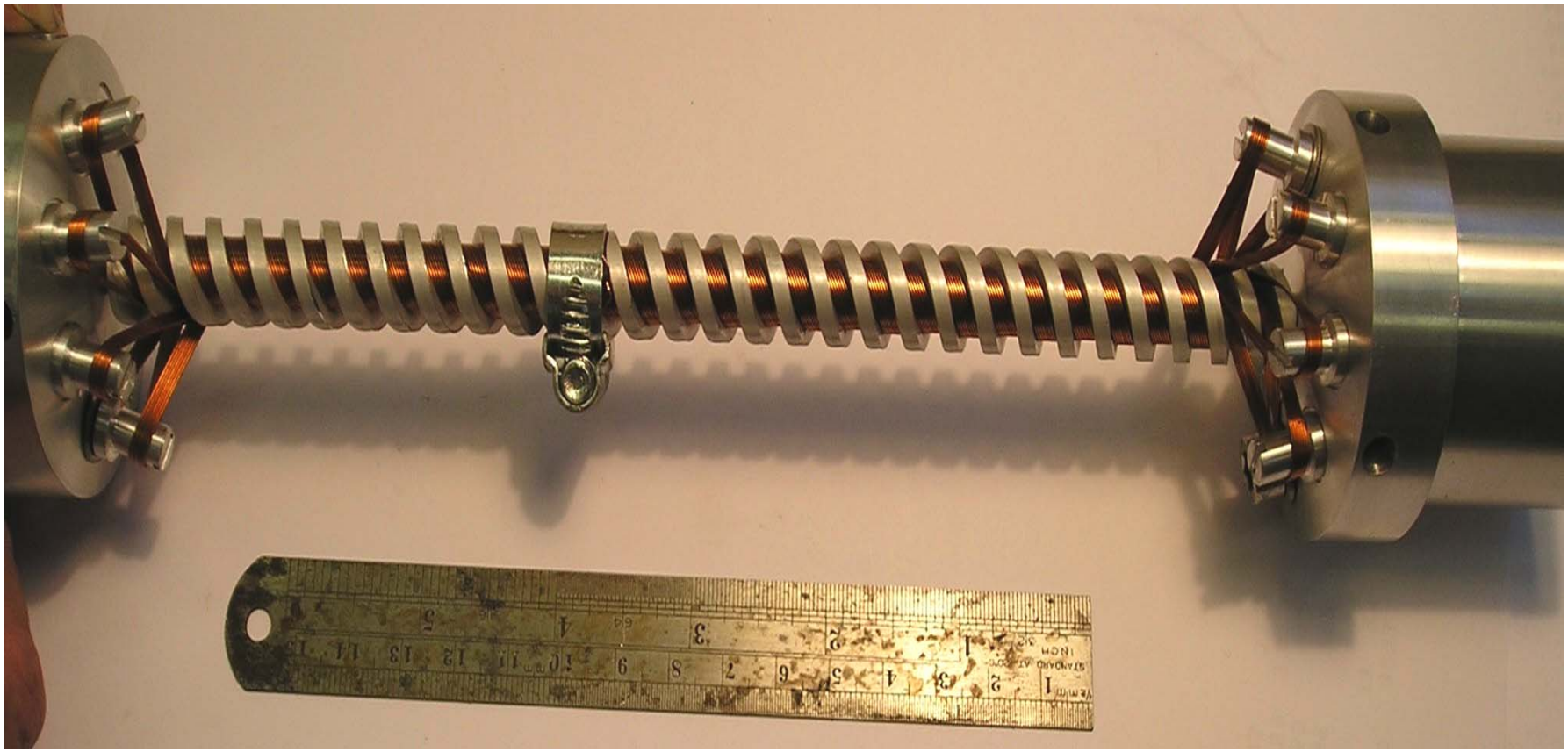
2007: 5-car prototype available for use in XFEL tunnel





Prototype readout board

Positron source helical undulator prototype



Technology and Site Issues

- **UK is agnostic concerning the linac warm vs. cold technology choice**
- **We intend to participate whichever is chosen**
- **UK is neutral concerning the eventual site**
- **We intend to participate wherever it is built**
- **We have good collaborative relations with TESLA, NLC, GLC, CLIC projects**
- **We envisage participating in a global LC collaboration**

Some practical issues (personal viewpoint)

- Concurrent LHC + LC running extremely desirable
- Two interaction regions would be a great advantage:
  - scientific cross-checking of results
  - novelty/complementarity of detector technologies
  - healthy competition
  - special options/upgrades eg. gamma-gamma
- The two detectors must have equal physics opportunity
- Global Accelerator Network is a great opportunity