EUDET Kickoff

Brief Overview of the Meeting at DESY 15.-17.2.2006
E.Elsen

details can be found at:
https://ilcsupport.desy.de/cdsagenda/fullAgenda.php?ida=a061

Presentation at the LCD Meeting 2.3.2006
## EU supported ILC related Projects

<table>
<thead>
<tr>
<th>Year</th>
<th>Project</th>
<th>Description</th>
<th>Initiative</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>CARE</td>
<td>Coordinated Accelerator Research in Europe</td>
<td>Integrated Infrastructure Initiative (I3)</td>
</tr>
<tr>
<td>2004</td>
<td>EUROTeV</td>
<td>European Design Study Towards a Global TeV Collider</td>
<td>Design Study</td>
</tr>
<tr>
<td>2005</td>
<td>EUDET</td>
<td>Detector R&amp;D towards the International Linear Collider</td>
<td>Integrated Infrastructure Initiative (I3)</td>
</tr>
</tbody>
</table>
## EUDET in Brief

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Proposal</strong></td>
<td>March 2005</td>
</tr>
<tr>
<td><strong>Negotiations</strong></td>
<td>July 2005</td>
</tr>
<tr>
<td><strong>Final Budget</strong></td>
<td>November 2005</td>
</tr>
<tr>
<td><strong>Start</strong></td>
<td>1.1.2006</td>
</tr>
<tr>
<td><strong>Budget</strong></td>
<td>21.5 M€ total</td>
</tr>
<tr>
<td><strong>EU</strong></td>
<td>7.0 M€ EU</td>
</tr>
<tr>
<td><strong>Manpower</strong></td>
<td>57 FTE total</td>
</tr>
<tr>
<td></td>
<td>17 FTE EU</td>
</tr>
</tbody>
</table>
## EUDET Partner Institutes

<table>
<thead>
<tr>
<th>European Universities</th>
<th>Associated Institutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charles University Prague</td>
<td>INFN Ferrara</td>
</tr>
<tr>
<td>IPASCR Prague</td>
<td>INFN Milan</td>
</tr>
<tr>
<td>HIP Helsinki</td>
<td>INFN Pavia</td>
</tr>
<tr>
<td>LPC Clermont-Ferrand</td>
<td>INFN Rome</td>
</tr>
<tr>
<td>LPSC Grenoble</td>
<td>NIKHEF Amsterdam</td>
</tr>
<tr>
<td>LPHNE Paris</td>
<td>AGH Cracow</td>
</tr>
<tr>
<td>Ecole Polytechnique Palaiseau</td>
<td>INPPAS Cracow</td>
</tr>
<tr>
<td>LAL Orsay</td>
<td>CSIC Santander</td>
</tr>
<tr>
<td>IReS Strasbourg</td>
<td>CERN Geneva</td>
</tr>
<tr>
<td>CEA Saclay</td>
<td>Geneva University</td>
</tr>
<tr>
<td>DESY</td>
<td>Lund University</td>
</tr>
<tr>
<td>Bonn University</td>
<td>Bristol University</td>
</tr>
<tr>
<td>Freiburg University</td>
<td>UCL London</td>
</tr>
<tr>
<td>Hamburg University</td>
<td>+20 associated institutes</td>
</tr>
<tr>
<td>Mannheim University</td>
<td></td>
</tr>
<tr>
<td>MPI Munich</td>
<td></td>
</tr>
<tr>
<td>Rostock University</td>
<td></td>
</tr>
<tr>
<td>Tel Aviv University</td>
<td></td>
</tr>
</tbody>
</table>
The EUDET Map

- EUDET partners
- EUDET associates

Novosibirsk
Protvino
ITEP
MPHI
MSU
Obninsk
KEK (Japan)
Elements of EUDET Program

Network
- Management
- Detector R&D Network

Joint Research Activities
- Test Beam Infrastructure
- Tracking Detectors
- Calorimeter

Transnational Access
- Access to DESY Test Beam
- Access to Detector R&D Infrastructure

EUDET Program Elements:
JRA I: Test Beam infrastructure

- Large bore magnet
  - 1 Tesla, \( \Phi \approx 0.85 \) cm, Standalone He cooling (KEK)
  - infrastructure (controls, field mapping, etc.) (EUDET)
- Pixel beam telescope
  - 4 layer MAPS detectors
  - CCD and DEPFET pixel detectors for validation
- DAQ

EUDET infrastructure is relocatable
- construction and initial tests at DESY
- later exploitation at e.g. CERN, FNAL, etc. possible
JRA2: Tracking Detectors

- Large TPC prototype
  - low mass field cage (suitable for magnet)
  - modular endplate system for large surface GEM and µMegas systems
  - development of prototype electronics for GEM & µMegas
- Silicon TPC readout
  - development MediPix ⇒ TimePix
  - TPC diagnostics endplate module + DAQ
- Silicon Tracking
  - large & light mechanical structure for Si strip detectors
  - cooling and alignment system prototypes
  - multiplexed deep submicron FE electronics
JRA3: Calorimeter

- **ECAL**
  - scalable prototype with Tungsten absorbers
  - Si-sensors and readout chips

- **HCAL**
  - scalable prototype
  - multi-purpose calibration system for various light sensing devices

- **Very forward Calorimeter**
  - laser-based positioning system
  - calibration system for silicon and diamond sensors

- **FE Electronics and data Acquisition system for the calorimeters**
Networking Activities

- Information exchange and intensified collaboration:
  - web based information system
  - annual workshops
  - open for everyone!

- Common simulation and analysis framework:
  - development of common software framework (testbeam analysis & ILC simulation)
  - small grid based computer cluster

- Validation of simulation:
  - e.g. Geant4 shower simulation

- Deep submicron radiation-tolerant electronics:
  - access through CERN contracts
Transnational Access

- Enable trans-European access to research facilities
  - (almost) self-evident in HEP
- Benefits
  - Travel support for European groups
    - for use of DESY test beam (as of 2006)
    - use of EUDET infrastructure as it becomes available (≥2008)
      - beam telescope
      - TPC
      - Si TPC
      - Si tracking
      - calorimeter
- Proposals requested
EUDET Budget & Timeline

- resources largely devoted to development of infrastructure
- ramp up 2006
- phase out 2009
European members form Selection Board for TA

- task leaders assigned to work packages
- Annual EUDET meeting and workshops
Purpose of Kickoff Meeting

• First get-together of collaboration
• review status and present initial plans
  • discuss open points and problems
• receive input from non-EUDET institutes, e.g. America, Asia
• encourage people to participate in our enterprise

Prepare the work for the first year
Meeting

• 101 registered participants
  • +30 adhoc participants
• Lively discussion in sessions
  • Reports from “other regions”
• Americas: Andy White
• Asia: Tohru Takeshita
Future Outlook

- Framework Programme 7 (report S Fontana)
- Infrastructure measures (peer reviewed)
- Design studies (strategic, via ESFRI)
- Strategy
  - ESFRI ← CERN Strategy Council (as long as it speaks for Europe)
Summary

- EU has clearly taken note of the ILC
- support on all levels
  - SC RF (via CARE)
  - accelerator physics (EUROTeV)
  - detector development (EUDETE)
- ...they expect a follow up