Session 9: Engineering Demonstration and R&D Plans

(Organizers: H. Braun & W. Kozanecki)

- **Part 1: R&D proposals**
  - **A plan of ATF Final Focus Test Beam Line (J. Urakawa)**
  - **NLC vibration program and LINX (T. Markievicz)**
  - **Plans and priorities for the CLIC stability study (R. Assmann)**
  - **A proposal to demonstrate gamma-gamma collisions at the SLC IP (M. Velasco)**

- **Part 2: Towards a common strategy**
  - **Colliding nanobeams: What do we need to demonstrate? (T. Mattison)**
  - **Linear colliders and light sources: Issues of common interest (L. Rivkin)**
  - **Parameters and potential 'nanobeam' application of test-beam facilities (S. Schreiber)**
  - **Brainstorming on R&D Priorities (SLAC NLC group)**
  - **Discussion**

R&D Themes & Facilities

Themes	Facilities	Comments
IP stabilization	**1. FD girder test (Slac)** **--> LINX ?** **2. CLIC Stabilization study** **--> CTF3 FFS test ?** **3. FF @ ATF-2**	Start 2003-4? Ongoing 2002-04 Start date tbc?
Optics demonstrations	**FF@ATF2**: • R-S FF design => 3.5 μm x 50 nm • tail-folding • (+ collim. survival tests?)	
FD magnet technology	• Compact SC w/ appropriate vibration • PM with appropriate vibration/T-stability/adjustability	*Either/both to supply* *ATF2 FD to 'focus' effort?*
Instrumentation & feedback	• some are crucial to concept (IP fbk), cost (BPMs), lumi (coll wakefields) • many developments appropriate to Univ. groups • 'The 'right' test beam	See overviews by (e.g.) • M. Ross (S. 7) • S. Schreiber (S. 9) + laser wire, E msmsts
X-fertliization : LC <---> light sources, LHC	• What can LC learn from them? • LS interest in ε/10, ε/100	• vibration ctrl/feedback • small ε msmt techniques • (polrzd) low-ε guns

Priorities, choices, and concrete plans

(see T. Mattison's talk for 'soul- searching wisdom')

- **What we would *really* love is a nm-level colliding nanobeam demo - but this is impractical (today) & maybe even unwise**
- **What do we absolutely need to demonstrate in order to convince**
  - **ourselves (mostly done?)**
  - **skeptical review committees/funding agencies/HEP competitors ?**
    - **system-level demo of FD stabilization (unanimous, or?)**
    - **RF (beyond scope of this meeting)**
    - ***anything* else ? (e.g. isn't Linac quad stability potentially a hidden problem)?**
- **What should we *(not)* do to help our credibility**
  - **only what is an essential demo ($\gamma\gamma$ collsions? could do a lot with e + laser only)**
  - **not all projects can be funded in each lab - need a coordinated approach**
  - ***not* 'more than you can chew' (failure dangerous even if for irrelevant reasons)**
  - **in a timely fashion**
- **Should we form 4 WG to produce coordinated proposals for the themes?**