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

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| 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?)    | Either/both to supply  
                                      ATF2 FD to 'focus' effort?    |
| FD magnet technology          | • Compact SC w/ appropriate vibration  
                                      • PM with appropriate vibration/T-stability/adjustability |                                |
| 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 mmsnts        |
| X-fertilization : 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 (\(\gamma\gamma\) collisions? 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?