Report from Collaboration Board

KEK Membership	K. Yokoya
SLAC Membership	T. Raubenheimer
Update of International Situation	A. Wagner
TESLA Technology Collaboration Mission Statement and MoU (discussion and adoption)	
The GDE and the next steps towards the ILC	B. Barish
TTF Operations in 2005	C. Pagani
Report from the Technical Board	H. Edwards

Albrecht Wagner
DESY, 1 April 2005

KEK ILC Program

Kaoru Yokoya

- **Impact of ITRP/ICFA Decision**
  - Enthusiasm on linear colliders continues
  - Understand the necessity of international collaboration
  - Remember why we had to choose one technology
  - One region alone cannot afford ILC
  - Quick reform required
- **Should we concentrate on non-linac components only? No —**
  - We have longstanding expertise on SC.
  - KEK has been very active in SCRF application to accelerators since 80's (TRISTAN, KEKB, JPARC)
  - Contribution to high gradient cavity technology
    Application of Electro-polishing to accelerators
  - Should contribute to SC parts too.
    Reinforce activity on SC for other applications too: (FEL, ERL, etc)
    Impact to Japanese government,
    no matter if we host ILC or not

KEK ILC Program

- **Our Plan for ILC**
- ATF
  - Improvements of ATF
  - Extension of ATF — ATF2
    International collaboration on-going
- STF ($\Rightarrow$ Hayano's talk)
  - Establish linac system technology for baseline gradient
  - Pursuit higher gradient

Though we believe we have high technology of cavity fabrication, we admit we are behind in L-band linac system technology as a whole

KEK ILC Program

By Joining TESLA Technology Collaboration:

- We would like to learn from TESLA technology
  - Many components are common
- We believe we can contribute to the technology progress
- Will be useful for SC application for other than ILC
  - STF will be used as a general SC technology base after its role for ILC

KEK would like to Join TESLA Technology Collaboration

- Updated MoU nearly ready
- KEK DG is ready to sign-up
- Obtained agreement of KEK Administration Head
- Still need bureaucratic procedure in upper level of the government

SLAC ILC Program

Tor Raubenheimer

- Program for FY05/FY06 has six main elements
  - Electron and Positron sources
  - Damping rings
  - Beam Delivery System and Interaction Region
  - Overall design: Beam parameters, Optics, Emittance preservation, Stability/alignment, Instrumentation, Availability, MPS, and Operational issues
  - Conventional construction implications and site development
  - Linac design and rf technology
    - Cryomodule beam interface (alignment and diagnostics)
    - klystrons, modulators, rf distribution, and possibly couplers
    - Wakefields and cavity optimization
    - Not SC Cavity fabrication

Linac Design

- Quadrupole alignment (program with DESY)
  - Use a SC linac quadrupole from DESY to study shunting alignment ability – very important to achieve desired tolerances
  - Continue program for NC quadrupoles
- BPM tests (program with TTF, ATF and LCLS)
  - Develop and test high resolution BPMs
- Laser wire (program at ATF and DESY)
  - Work with other groups to test high resolution laser wires
- Cavity diagnostics (program at TTF)
  - Add HOM detectors to SC cavities at TTF to determine beam-cavity location – very important especially for high shunt impedance cavities with small aperture
- Model TESLA and Low Loss cavity wakefields
  - Mode rotation (X-Y coupling) is a 3-D problem

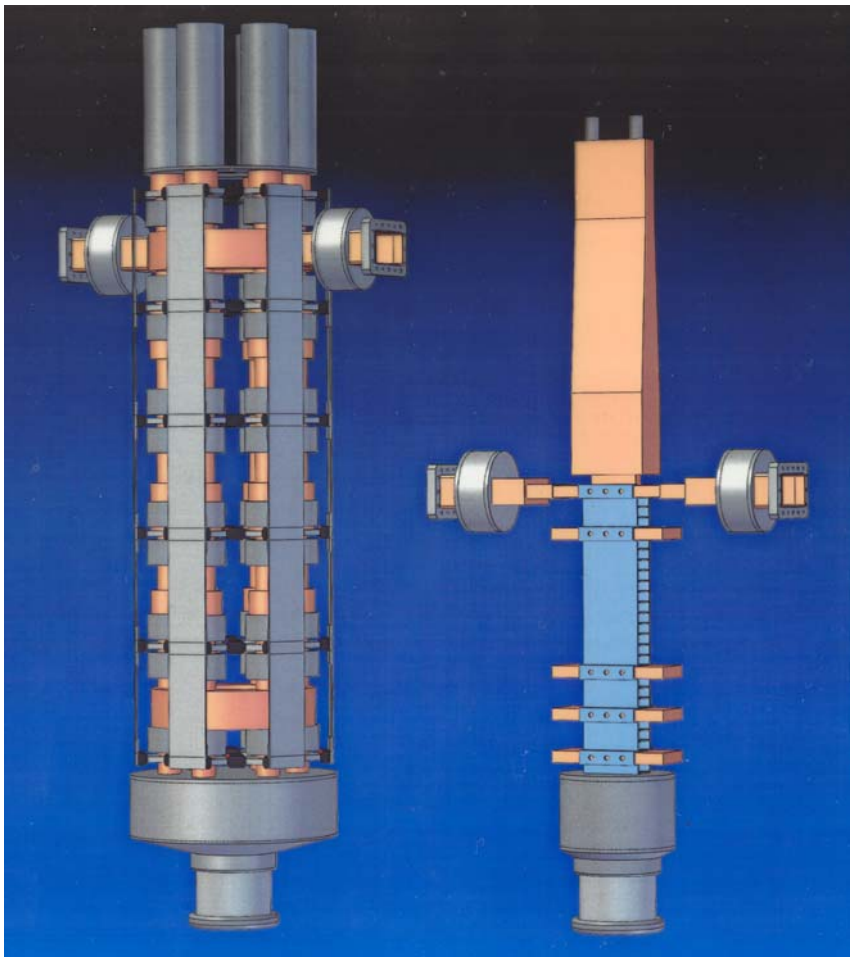
Modulators

- ILC Baseline is essentially FNAL/DESY/PPT modulator
  - Single switch with bouncer circuit and 12:1 transformer
  - Efficiency is pretty good; reliability uncertain; transformer is large and stray fields may impact the damping ring

- SLAC effort is evaluating options
  - Receiving an SNS power converter-modulator which should have good efficiency
  - Building Marx generator style which should provide similar efficiency and 100% availability
  - Building switch for FNAL bouncer-style modulator
  - Working with Diversified Technologies in SBIR program to test another series-switch modulator

Klystrons

- Exploring a sheet beam klystron as an alternate to the MBK tubes → significant cost reduction
  - High efficiency design using flat beams instead of 6 beamlets
  - Smaller with simpler focusing, cavities, and cathodes
  - Intrinsically 3-D design however the tools exist these days
  - No experience with sheet beam tubes
    - Building a W-band tube using external funding



Summary SLAC

- SLAC have had successful recent installation and operational experience at the TTF
  - LOLA deflecting cavity
  - HOM cavity diagnostics
- Looking forward to near term collaborations on
  - The TESLA SC quadrupole and BPM
  - Possibly the 10MW CPI klystron
- SLAC has much to contribute to the TESLA Technology Collaboration and has much to learn from it
  - Diagnostics
  - Cavity modeling
  - Beam dynamics studies and tests
  - Modulator and klystron extensions beyond baseline

Memorandum of Understanding

- Editing of MoU text file

- Next steps:
  - send resulting MoU to all members of the CB requesting comments
  - establish the final MoU based on all input
  - send final MoU to all institutions which have said that they want to remain or become members of the collaboration

- Question:
  - How best to link the TESLA Technology Collaboration to the projects, such as XFEL and ILC?

Technical Board

- The activities of the collaboration are structured into technical areas of interest (e.g. cavity R&D, module development, RF control, etc). The technical areas should be defined by the CB, in agreement with the leaders of the major projects using SC RF technology, such as the XFEL or the ILC.
- The Technical Board (TB) is composed of the coordinators of the technical areas and the spokespersons of the various Test Facilities or persons designated by them. The members of the TB are appointed by the CB.
- The TB provides advice to the TESLA Technology Collaboration on technical activities toward reaching the goals of the Collaboration Mission.

Technical Board

- To these ends, the TB will
- observe the technology activities in the different technical areas and provide findings and recommendations to the CB. These recommendations should be considered as suggestions to the community at large.
- review objectives, schedules, and priorities of activities at the various test facilities, provide input to the definition of technical milestones, review progress and identify gaps and possible problems, and provide input to help optimize the projects, such as the XFEL and ILC.
- provide summary reports to the CB.