

Regional Report: Asia

Japan

China

Korea

India

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Jan.21.2011, FALC at SLAC

JAPAN

Plan for TDR (Technical Design Phase)

- JFY2010

- STF

- S1-Global (including the first test of DRFS)

- Cavity R&D

- Cavity Plant

- Press machine started

- Delivery of EBW machine by the end of JFY2010

- ATF

- Fast kicker development

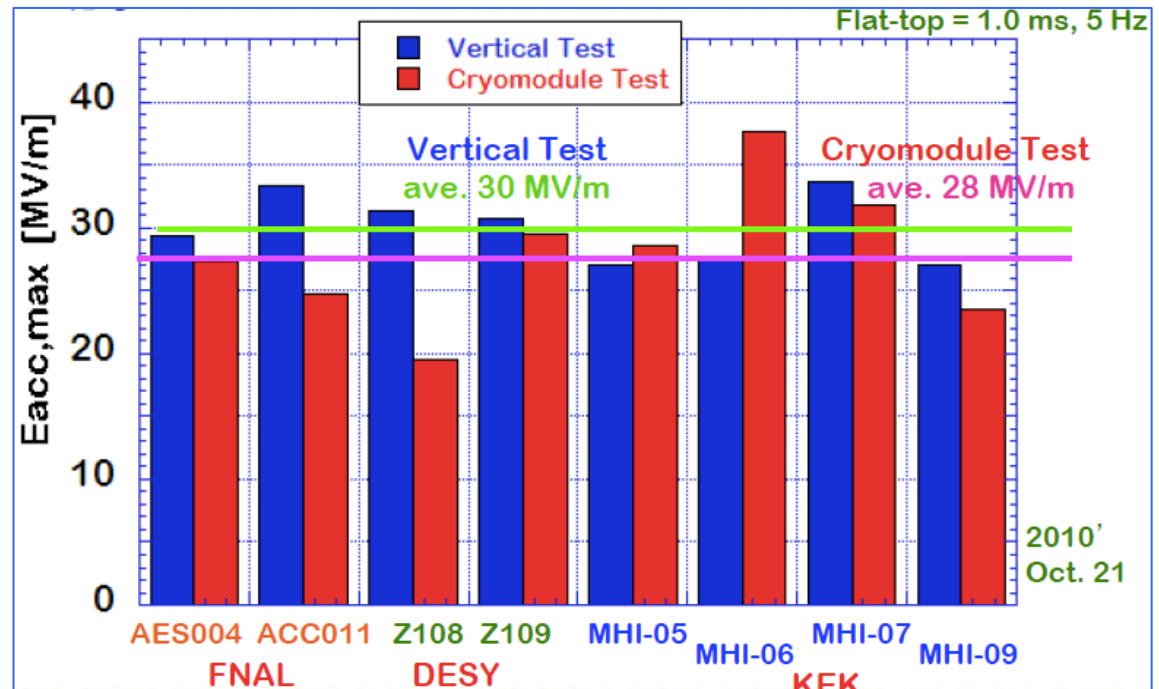
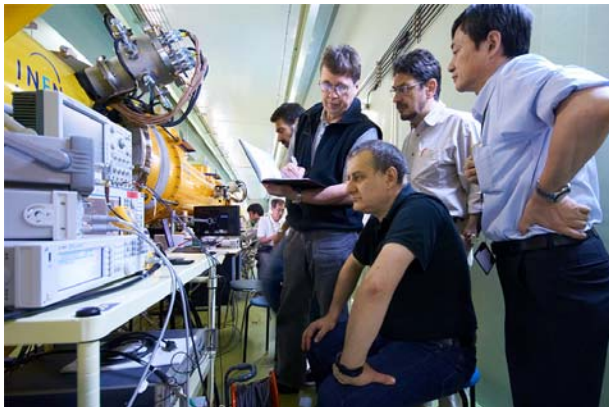
- ATF2 Goal 1 (beam size ~35nm) by end of JFY2010 (Mar.2011)

Latest 4 tests

	E _{max} MV/m	Q0@35 MV/m	Date 2010
MHI12	37.5	7e9	11/11
	40.7	1e10	12/18
MHI13	36.2	9e9	11/25
	32.2		12/22

S1-Global

- Module test with 8 cavities from DESY, FNAL, KEK in 2 cryostats from INFN, KEK
- Demonstration of average gradient and plug-compatibility
- Work done by many visitors plus KEK staff
- To be finished in February
- First test of DRFS power system in February

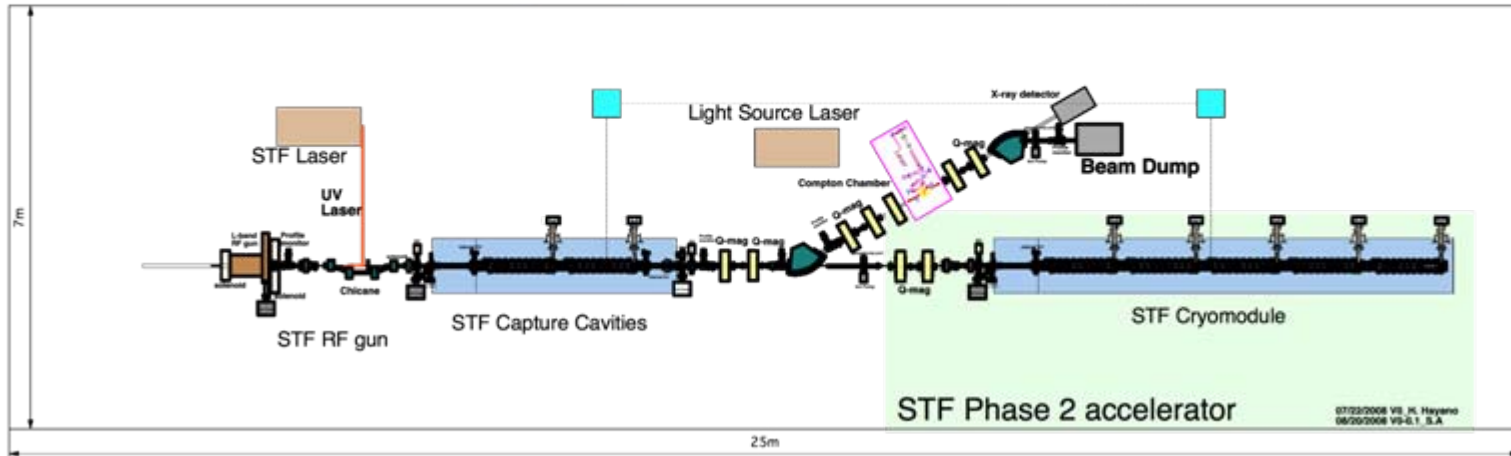


JFY2011-2012

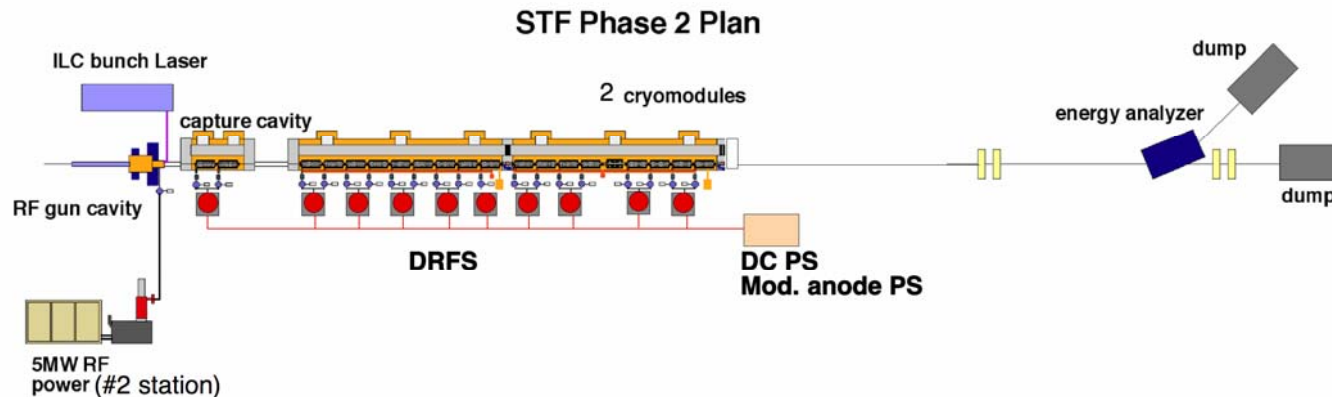
- STF
 - Quantum-Beam project
 - Starting Apr.2011, operation ends in July.2012
 - STF2
 - System test with beam
 - Production of the components already started
 - Installation to be completed by end of JFY2012
 - Start operation of the cavity plant
- ATF2
 - Work for Goal 1 may
 - still remain in early JFY2011
 - Goal 2 (beam centroid stabilization to a few nm)
 - Start JFY2011 as early as possible
 - To be completed in JFY2012

Quantum Beam Project and STF Phase 2

Compact Light Source accelerator in STF Phase 2



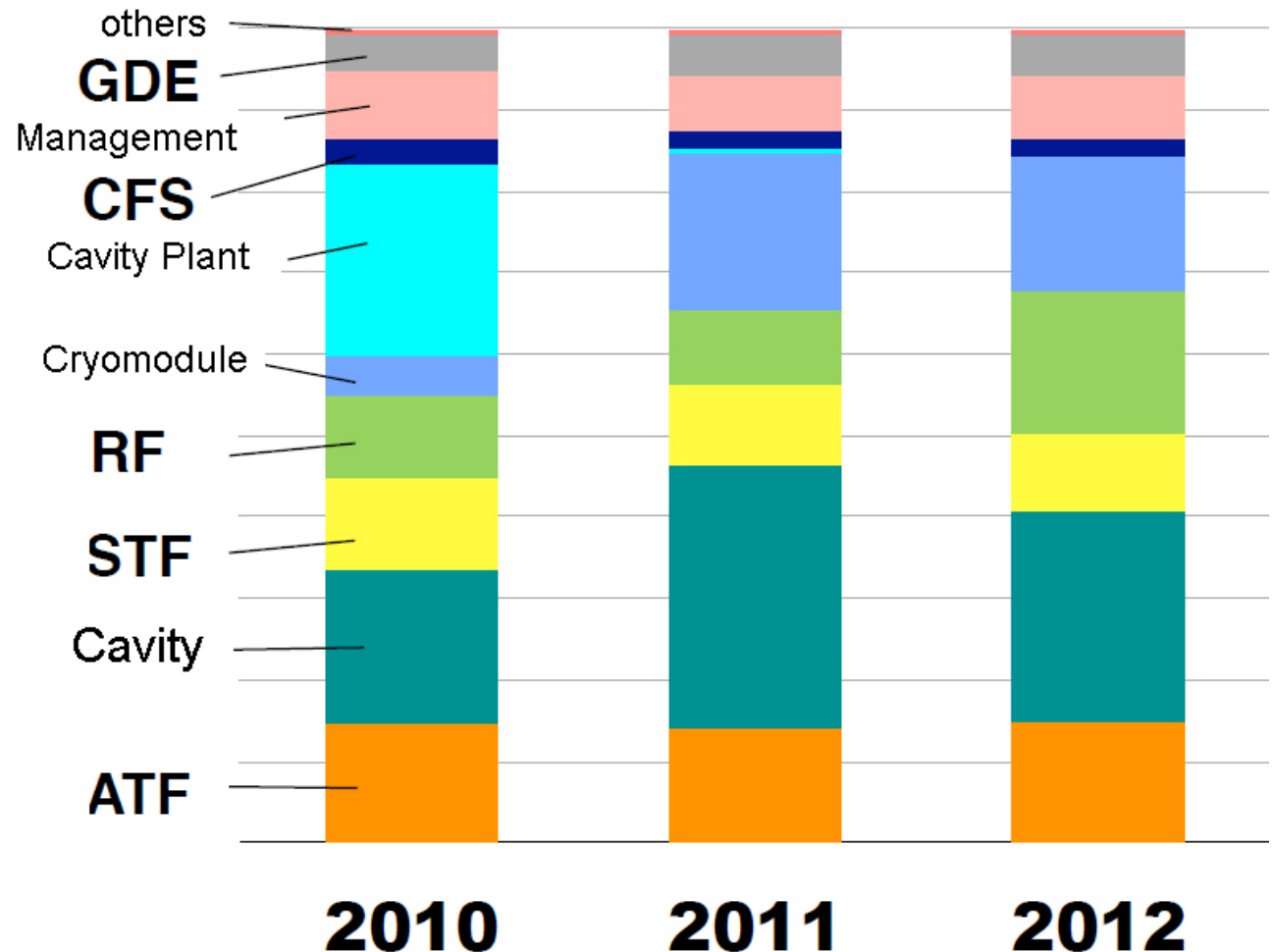
Compton X-ray source with 2 cavities and optical cavity



(nearly) ILC cryomodule with beam, powered by DRFS

Budget Plan in TDP

- Assume the present level of budget till 2012



Beyond 2012

- 2012 is an epoch for KEK LC team as well as GDE
- STF
 - STF2 (1 module) installation will finish by end of 2012
 - Operation starts early 2013
- ATF
 - Goal1 and 2 of ATF2 will be completed in 2012 (slight extension may be needed)
 - Its operation will continue to 2013 and beyond
 - Higher-quality beam is very much beneficial for ILC
 - Has to reconsider the role of ATF beyond 2012
 - Should accept wider range of topics in addition to ILC
 - CLIC-related experiments are already being done.
 - Other accelerator R&D may be included
 - Fully make use of the capability of ATF
- We are making future plans for both STF and ATF
 - One of the topics of LC committee Jan.25
 - Will take time for conclusion

China

- Organization for ILC is rapidly growing
 - First LC Collaboration Meeting (domestic) held at Beijing in Oct.30-31 in 2010.
 - IHEP ILC Administration group formed in Nov.2010.
- Active participation to world ILC collaboration
 - GDE workshop at Beijing in March last year
 - Next POSIPOL (polarized positron) workshop to be held in Beijing in Aug.2011
 - TTC meeting (after Milano) to be held late 2011 (or beginning of 2012) in Beijing with the cooperation of IHEP, Peking University (PKU) and Tsinghua University
 - PKU has a long history of cavity development in particular with JLab (reached 28MV/m)

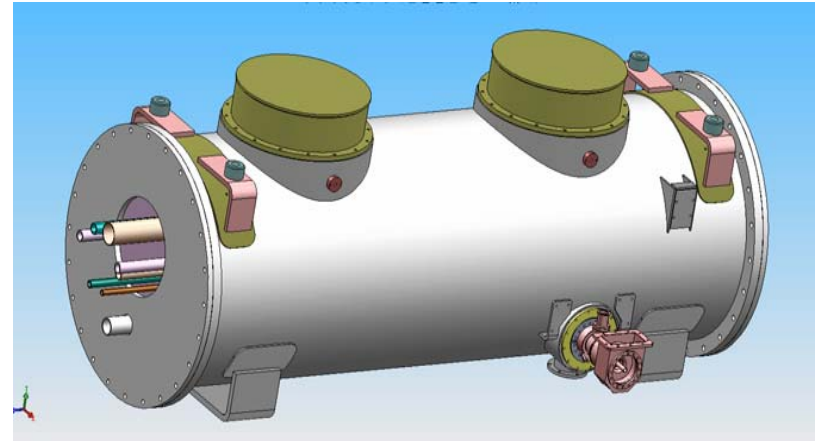
Cavity Development at IHEP

- Cavity technology being developed
 - Close collaboration with KEK
- First IHEP cavity
 - Low-loss type, large grain. Bare cavity. No FD
 - Vertical test in June/July in 2010 at KEK
 - Reached ~20MV/m
 - Reprocessing and test
 - still uncertain, depends on KEK schedule and priority
- Second IHEP cavity
 - Low-loss type, large grain. HOM coupler.
 - To be installed into IHEP short cryomodule
 - Under fabrication
 - Vertical test this year
- Third IHEP cavity
 - TESLA-like, fine grain
 - Can, in principle, be installed in STF (easier to satisfy Japanese High-Pressure Vessel Code than other cavity shapes)
 - Fabrication is just starting



SC Lab Facility at IHEP

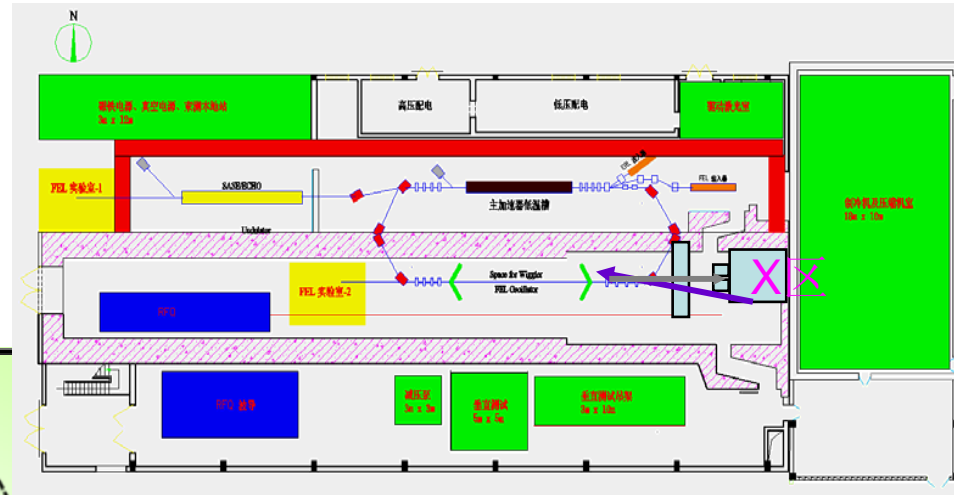
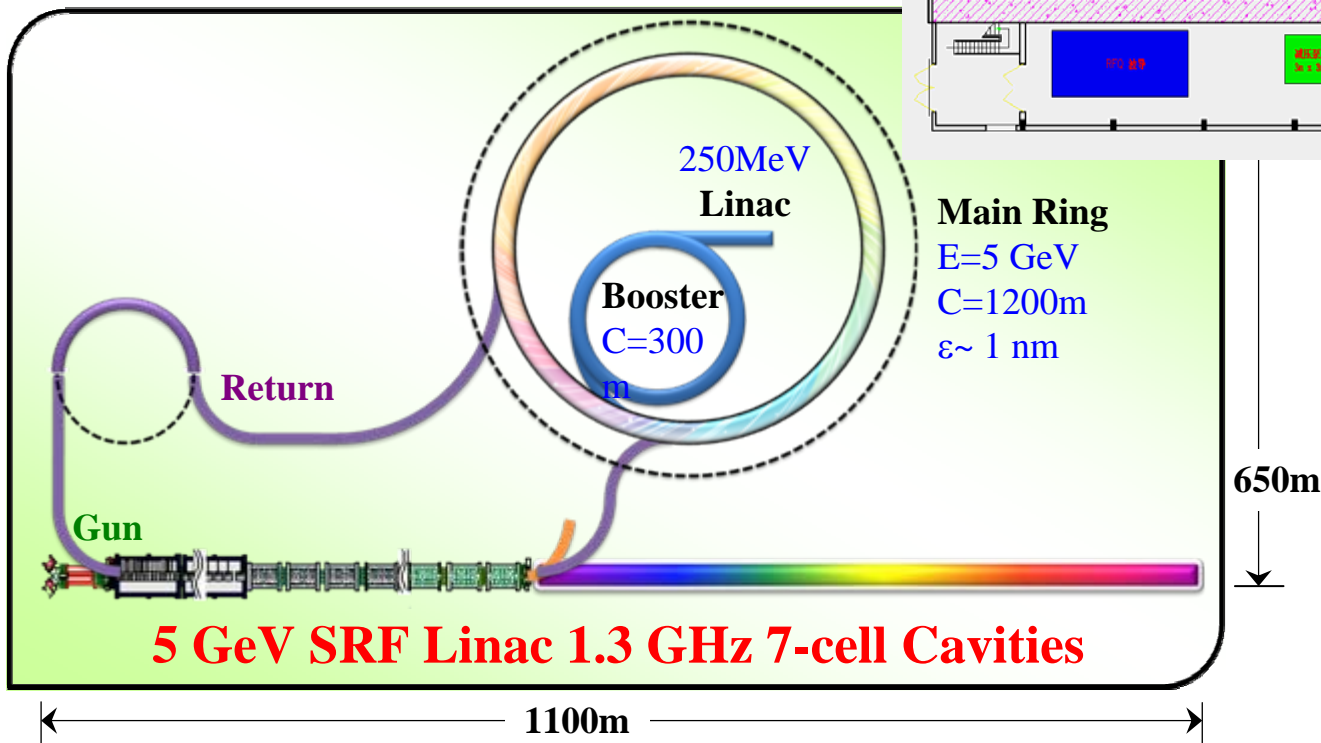
- Funded in 2008
 - 3 cavities
 - 1 cryostat (for 1 cavity)
 - CBP,CP,VT,HPR,etc



- New budget from 2011 (for 5 years)
 - 20 MRMB (1M\$ = 7MRMB)
 - Plus 15 MRMB for EBW machine
- Additionally, 15 MRMB for 500W cryogenic compressor (Linde) from 2011/2012 (60% in the first year)

Future Plan of China

- China is planning many other accelerator projects
- ERL test facility (1.3GHz, 2x 7-cell cavity) at IHEP
 - Being designed
 - To be completed by 2015
- Beijing Light Source (2016-2025)



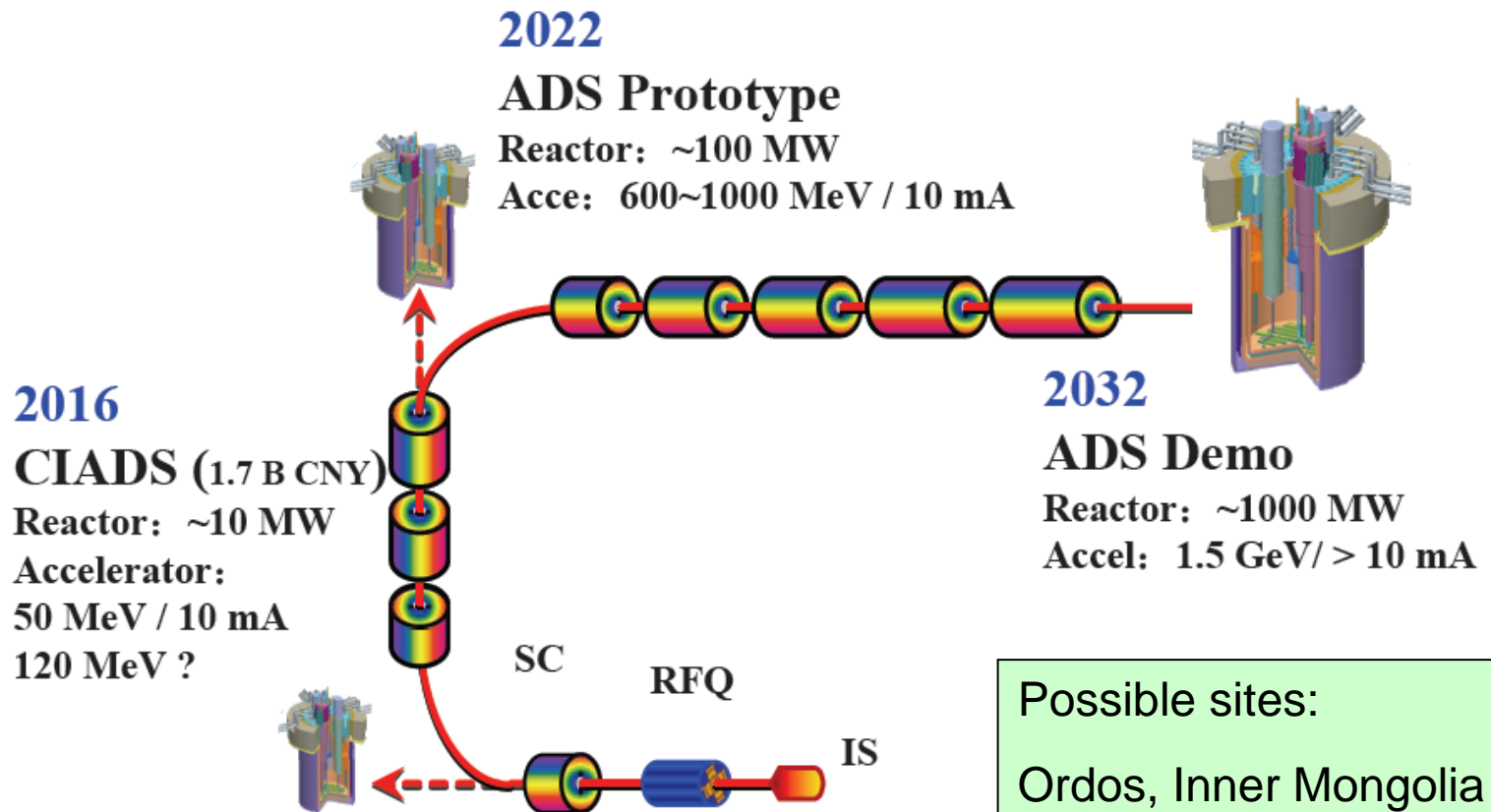
Beijing Science Park



50 km North of downtown Beijing, include New SRF Lab 13

China ADS (Accelerator Driven System)

- Start study of 1.3GHz $\beta=0.8$ (or 0.9) multi-cell cavity and accelerating unit from 2011



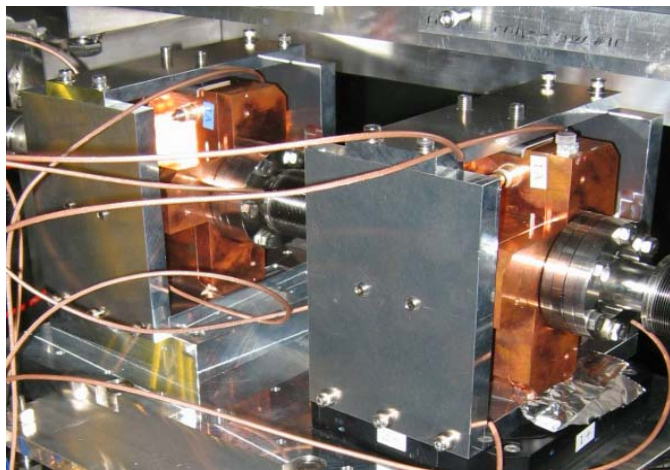
Korea

- ILC works
 - Participation to KEK-ATF activities
- Several large accelerator projects on-going or approved

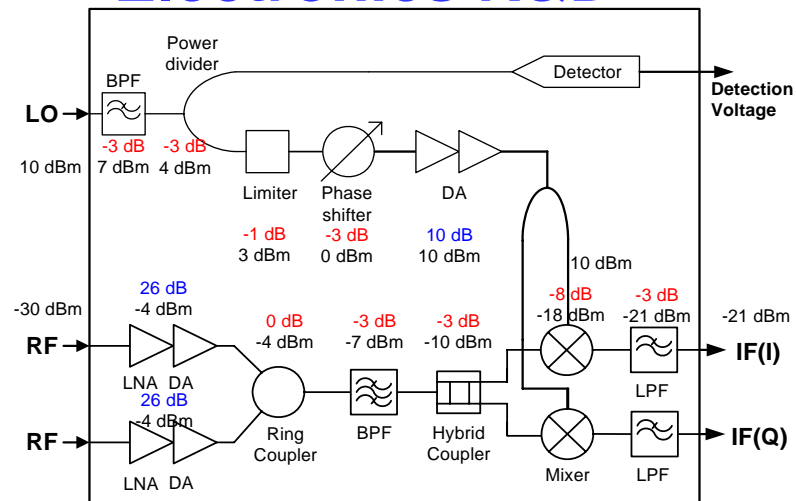
Slides from ES Kim (KNU)

Low-Q IP-BPM for nanometer resolution (KNU)

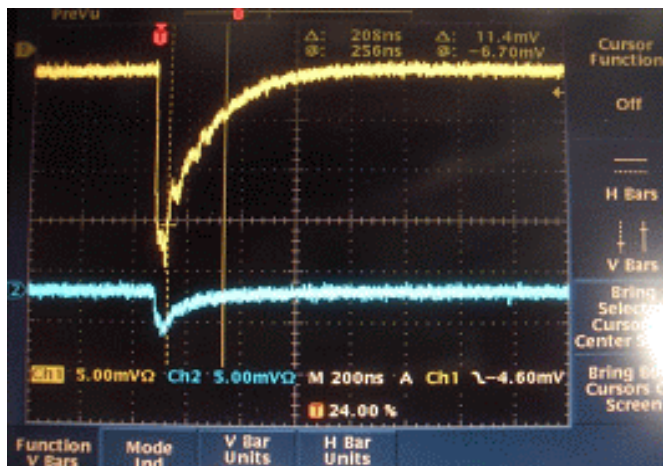
Installation at KEK-ATF2



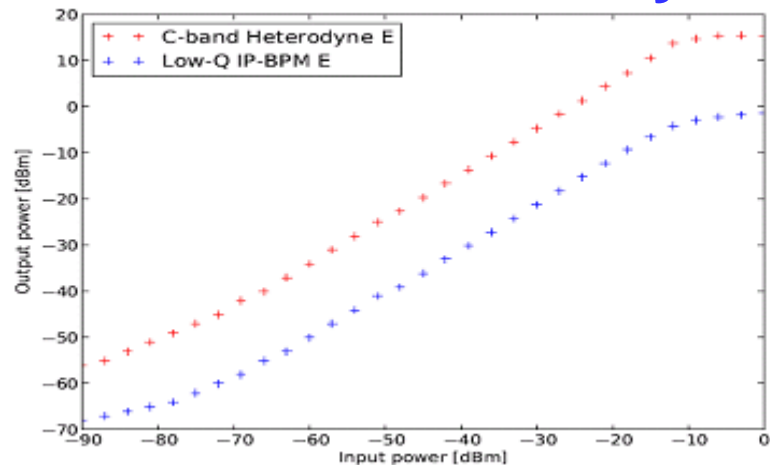
Electronics R&D



Measured waveform



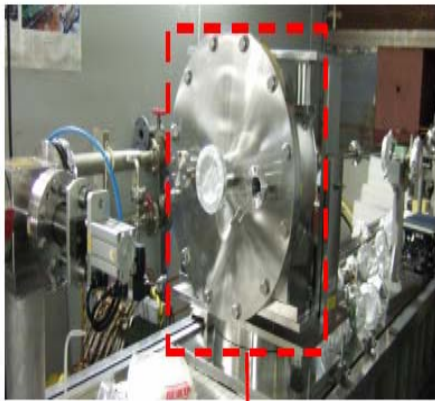
Measured linearity



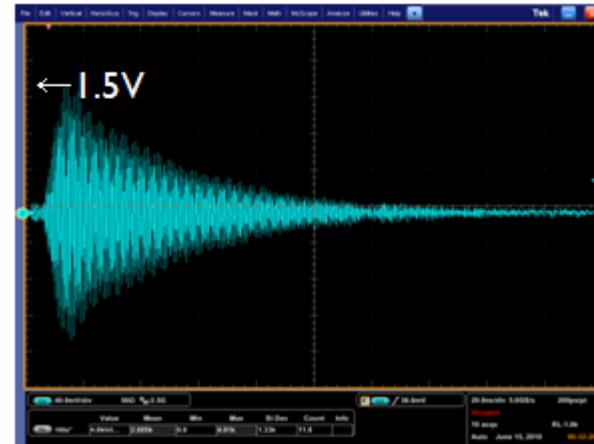
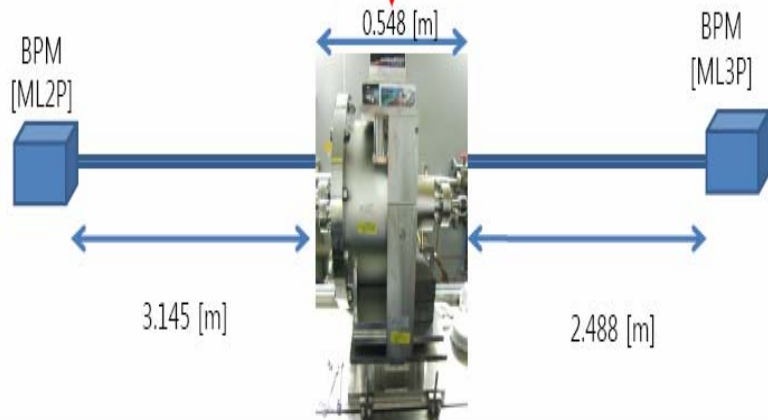
Beam test for L-band BPM (KNU)

Installation at KEK-ATF linac

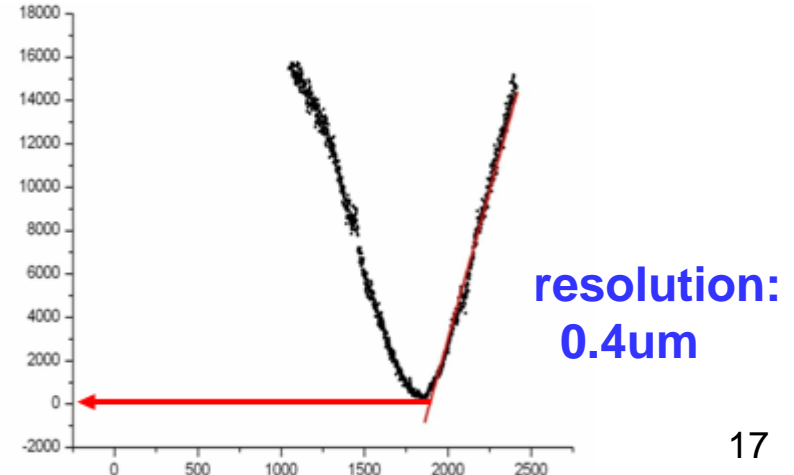
Measured waveform



L-Band BPM is installed here



Measured antenna scan



Status on accelerator projects at Korea

Project	Accelerator	Period	Budget (M\$)	Status
PLS-II (PAL)	Upgrade of PLS (3 GeV Light Source)	2009-2011	100	On-going
PAL-XFEL	10 GeV Free-Electron Laser	2011-2014	400	Approved
KORIA (new city)	Rare Isotope Accelerator (200 MeV/u (U))	2010-2015	460	TDR
PEFP (Gyeongju)	Proton Linac (100 MeV, 20 mA)	2002-2012	300	On-going
KHIMA (Busan)	Heavy-ion Therapy (Carbon, 430 MeV/n)	2010-2016	200	On-going

India

- Indian institutes
BARC, RRCAT, VECC, IUAC, DU
- Developing SCRF technologies in collaboration with US institutes, FNAL, SLAC, JLab, Cornell
- High Intensity Proton Linac
 - Project-X
 - Transmutation
- High energy physics
 - Neutrino (MINOS etc)

Summary

- Japan
 - Full of programs towards TDR in 2012 including STF2, ATF2
 - Cavity plant developing
 - Plans beyond 2012 being discussed
- China
 - Organization for ILC established
 - Close collaboration with KEK in particular on cavity and cryomodule technology
 - Larger accelerator facilities going to start
- Korea
 - Large accelerator projects ongoing and new projects approved
- India
 - SCRF technology development mainly in collaboration with US institutes