



# Test beam Facilities in Asia

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on behalf of Y. Fujii



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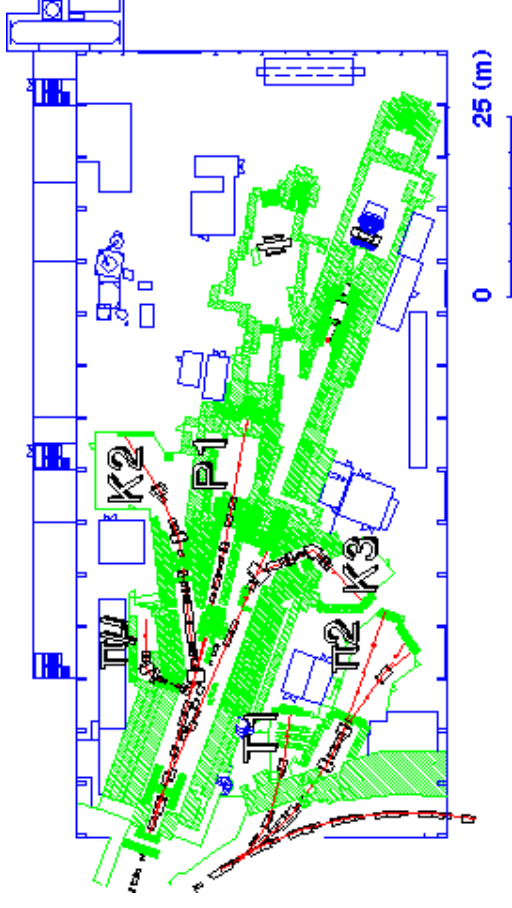
It is nice to know about these facilities even though you may not have any plan of doing test at facilities in Asia, because you might be forced to do so due to black-out of CERN/FNAL some day.

(This talk is an update of Fujii's talk at ALCPG at SLAC)

# KEK PS

Internal target in the 12GeV-PS  
scrapes protons

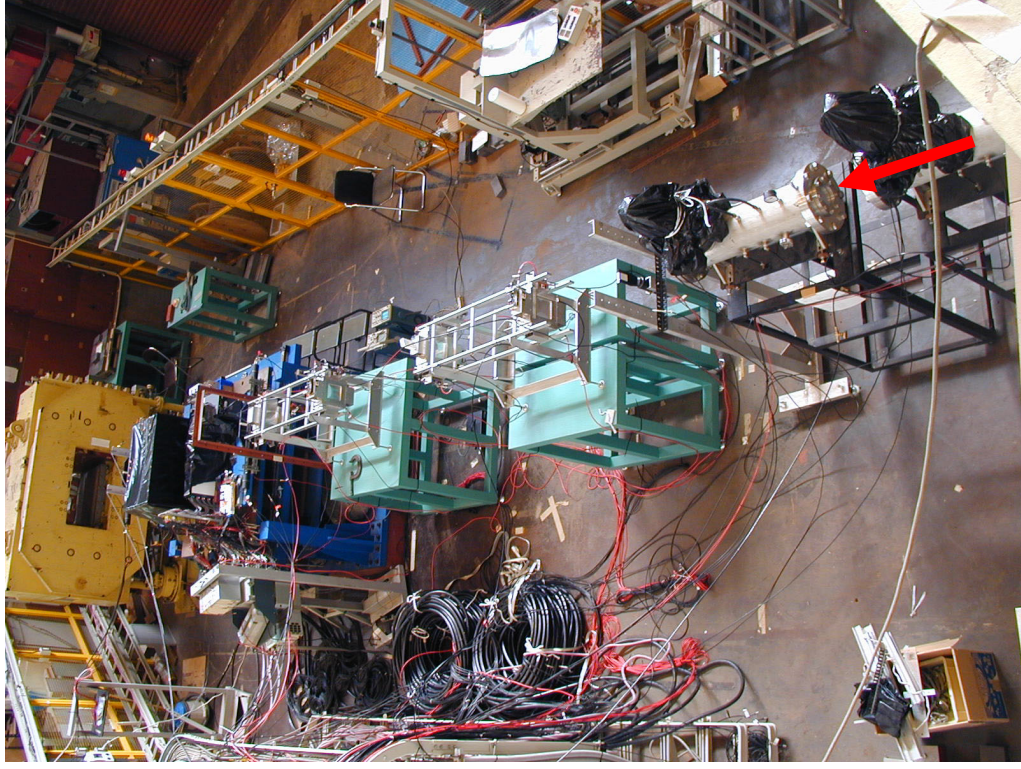
- Hit production target
- Various secondaries to
  - Two facilities, T1 and  $\pi 2$
- $\pi 2$  has better beam parameters
- $\pi 2$  has better equipments/utility
- General support of electronics pool , crane operation, etc. available
- Radiation training necessary, but NO EXAMINATION



- Assistance of a KEK-researcher is practically indispensable whole through the program
- Originally planned to be shut-down by the end of 2004
- Due to the strong request, the operation will probably be extended to SUMMER 2005

# KEK PS

- $\pi 2$  beamline



- T1 beamline





# KEK PS ; $\pi^2$ beamline

## ■ Beam Parameters

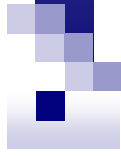
Momentum	0.2~4 GeV/c	Limited by power supplies of magnets
Momentum Bite	$> \pm 1\%$ (FWHM)	Determined by momentum-slit
Species	e, $\mu$ , $\pi$ , K, p, p-bar	No enrichment
Intensity	e, $\mu$ : few Hz – few 100 Hz Inclusive: several x10 kHz	Depends on momentum and slit width
Spill Structure	1.5 sec spill in 4 sec cycle	
Beam Size	Core: 1 cm (dia.) Halo: several cm	At focal point. Focus not sharp



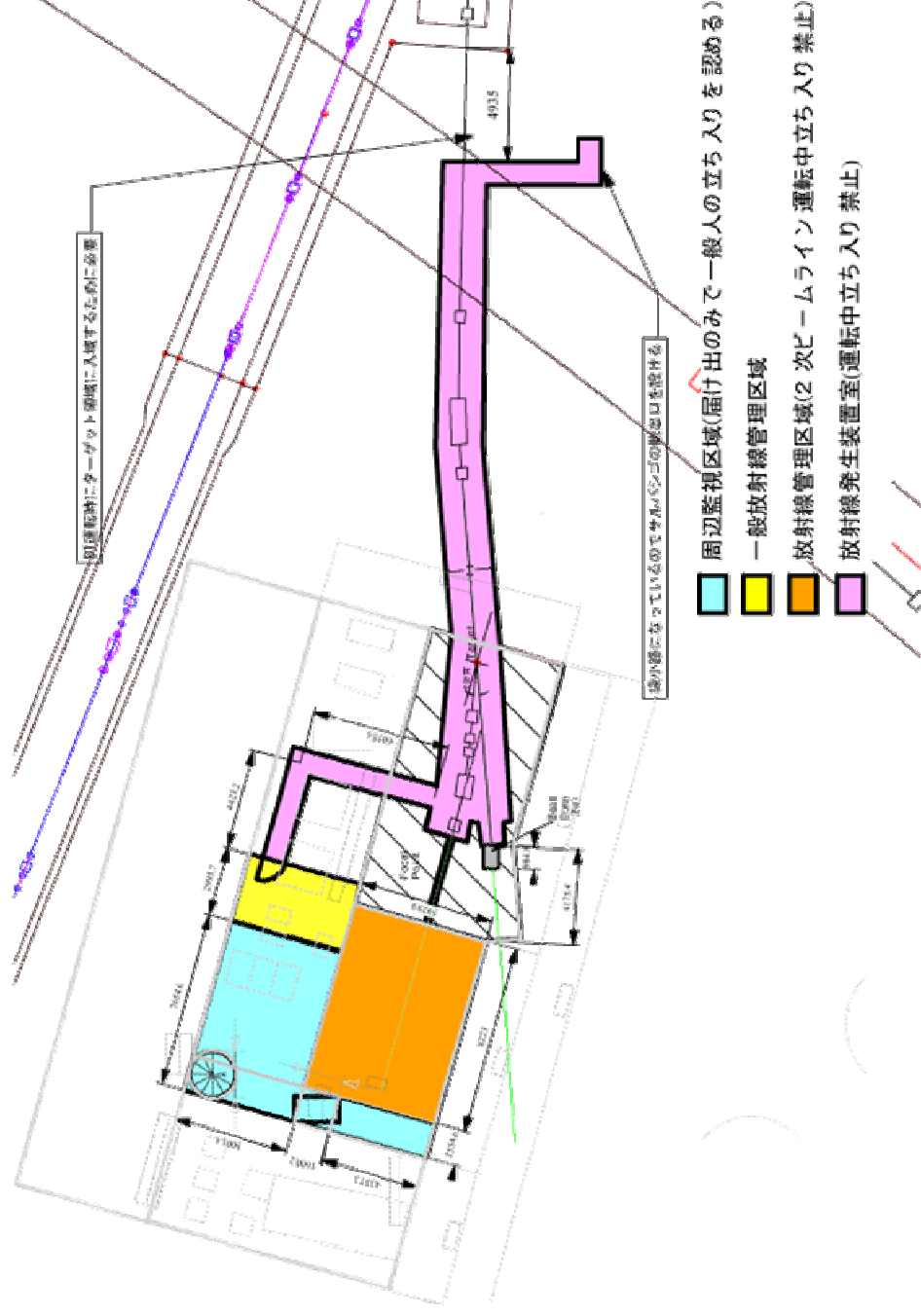
# KEK PS ; $\pi^2$ beamline

## ■ Utilities and Equipments

Area Size	12 m-long, 6 m-wide	Practically unlimited height
Crane	25 t / wireless-control	Qualified user can operate.
Gas Cerenkov	Vacuum to a few atm	
Magnet	2 Tesla/Large gap	for device test in B
(on request)	Moving Stages, Analyzing Magnet	



# KEK Linac End Station



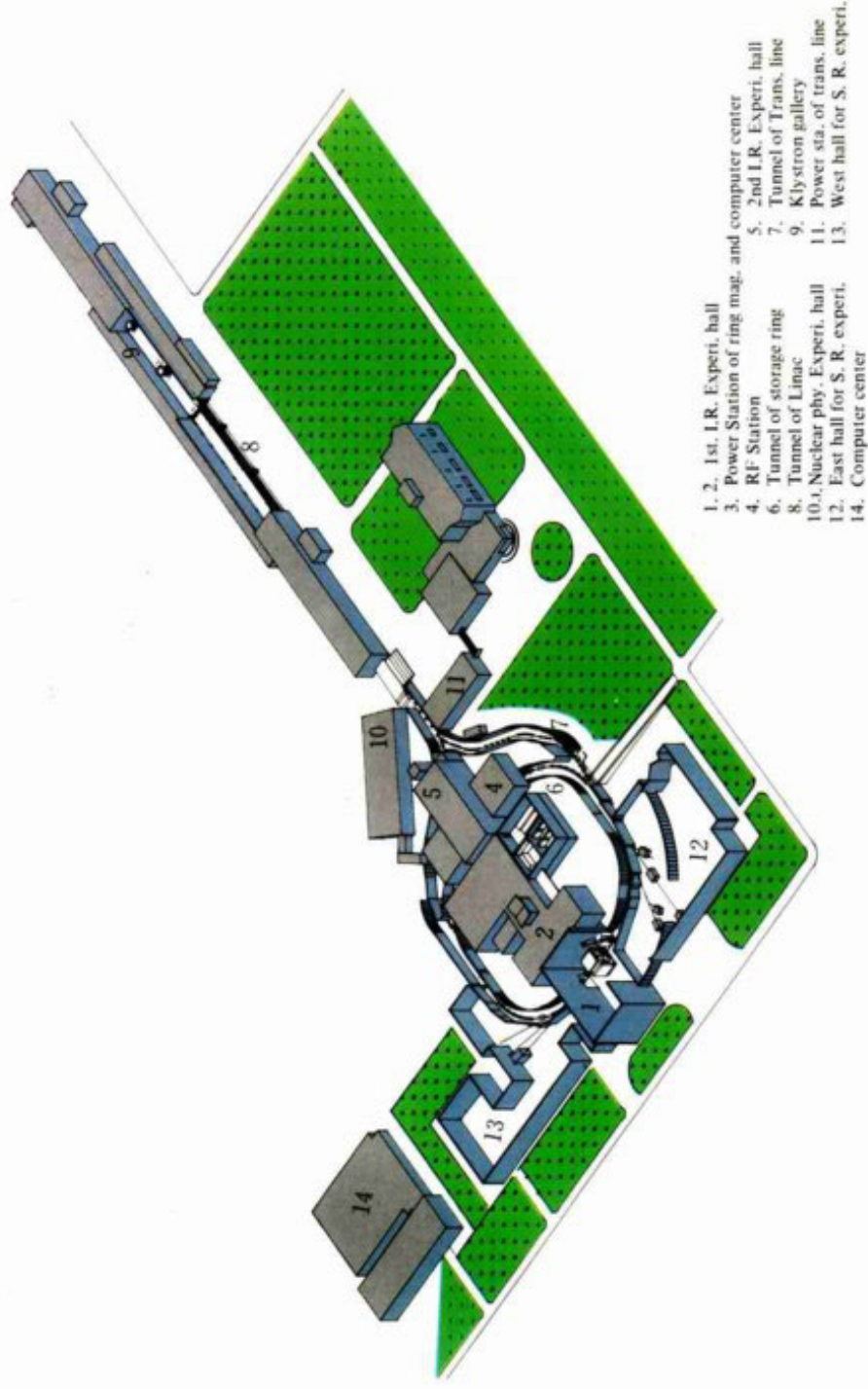


# KEK Linac End Station

- A test facility at the end of 8 GeV-electron linac is being designed.
  - Particle species: e,  $\pi$ , K, p (and  $\mu$ ?, p-bar?)
  - Intensity: 10Hz (inclusive); examining possibility of 50 Hz. Mostly  $\pi$ , 10% K, 10% p (one particle/bunch, most bunches go to KEKB)
  - Momentum: 0.1~4 GeV/c; examining possibility of 8 GeV/c (limited by magnets/power-supplies moved from  $\pi^2$ )
  - Momentum bite: ~a few %; examining possibility of < 1%
- Construction Cost ~ 7M\$ – Hopefully approved in 2005
- Construction needs two summer shutdowns (2005 and 2006) of KEKB, then becomes available by the fall 2006  
(ask Toshifumi Tsukamoto for detail)



# IHEP-Beijing





# IHEP-Beijing

- Two halls in E3 area (~300m<sup>2</sup> with 10-ton crane)
  - Hall-1: Direct beam from Linac
    - E=1.2 GeV,  $\sigma_E=0.4$  MeV
    - 50 Hz, 900 mA (max)
  - Hall-2: Secondary beam
    - Intensity ~ 1 Hz
    - Particle species: e,  $\pi$ , p
    - Momentum: 0.2 – 1.2 GeV/c,  $\sigma_p/p \sim 1\%$
    - Equipped with 3 scintillation counters, a Cerenkov counter, 3 MWPCs, and 1-ton stage
  
- Available now. Locates almost at the central part of Beijing, with a comfortable guest house, delicious restaurants, and cheap!!

See <http://www.ihep.ac.cn/english/nianbao-e/02-E/Chapter1-Experiments.pdf> for detail, or contact Prof. Lu Janguang at [lujg@ihep.ac.cn](mailto:lujg@ihep.ac.cn).



# IHEP-Beijing

- IHEP: West Hall



# New Facility at J-PARC

- The J-PARC is a research complex for material and life science, nuclear physics, high-energy physics, and nuclear reactor research. Test facility would be attached to nuclear and particle physics experiment hall





# New Facility at J-PARC

- Proposal for construction of a testbeam facility at J-PARC submitted
- The 1st stage will complete around 2008.  
A T1-like test facility will be prepared.  
Discussion in progress for better performance.
- The 2nd stage may complete around 2012 or later.  
Full facility is at least in the plan.
- Requested facility is something better than  $\pi^2$ , with higher momentum fully utilizing 50GeV.
  - Up to 10GeV to overlap with FNAL/CERN, with bite of better than 1% (FWHM).
  - Mixed beam of e,  $\mu$ ,  $\pi$ , K, p, p-bar
  - Cerenkov, Moving Stage, Crane, Magnet, , ,
- Huge money goes to accelerator complex (1.7B\$), very little for experimental facilities.

See <http://www-ps.kek.jp/jhf-np/L01list/pdf/L02.pdf> for detail.



# Summary

KEK PS	0.2 – 4 GeV	e, $\mu$ , $\pi$ , K, p, p-bar	– Summer 2005
KEK Linac	0.1 – 4 GeV ( $\rightarrow$ 8 GeV?)	e, $\mu$ (?), $\pi$ , K, p, p-bar(?)	Fall 2006 –
IHEP-Beijing	0.2 – 1.2 GeV	e, $\pi$ , p	Available now Users welcome
J-PARC	0.2 – 2 GeV ( $\rightarrow$ 10 GeV?)	e, $\mu$ , $\pi$ , K, p, p-bar	2008 – Pressure welcome
Tohoku STB	0.06 – 1.2 GeV	e, tagged- $\gamma$	Available now Users welcome