

What is JHF?

(Japan Hadron Facility Project)

◆ Aiming at interdisciplinary research

- Materials science and life science
- Nuclear and particle physics

◆ Four facilities (Arenas)

- N-arena: Neutron science
- M-arena: Muon science
- E-arena: Unstable nuclei
- ◆ K-arena: Nuclear and particle physics
 - Neutrino oscillation experiment.

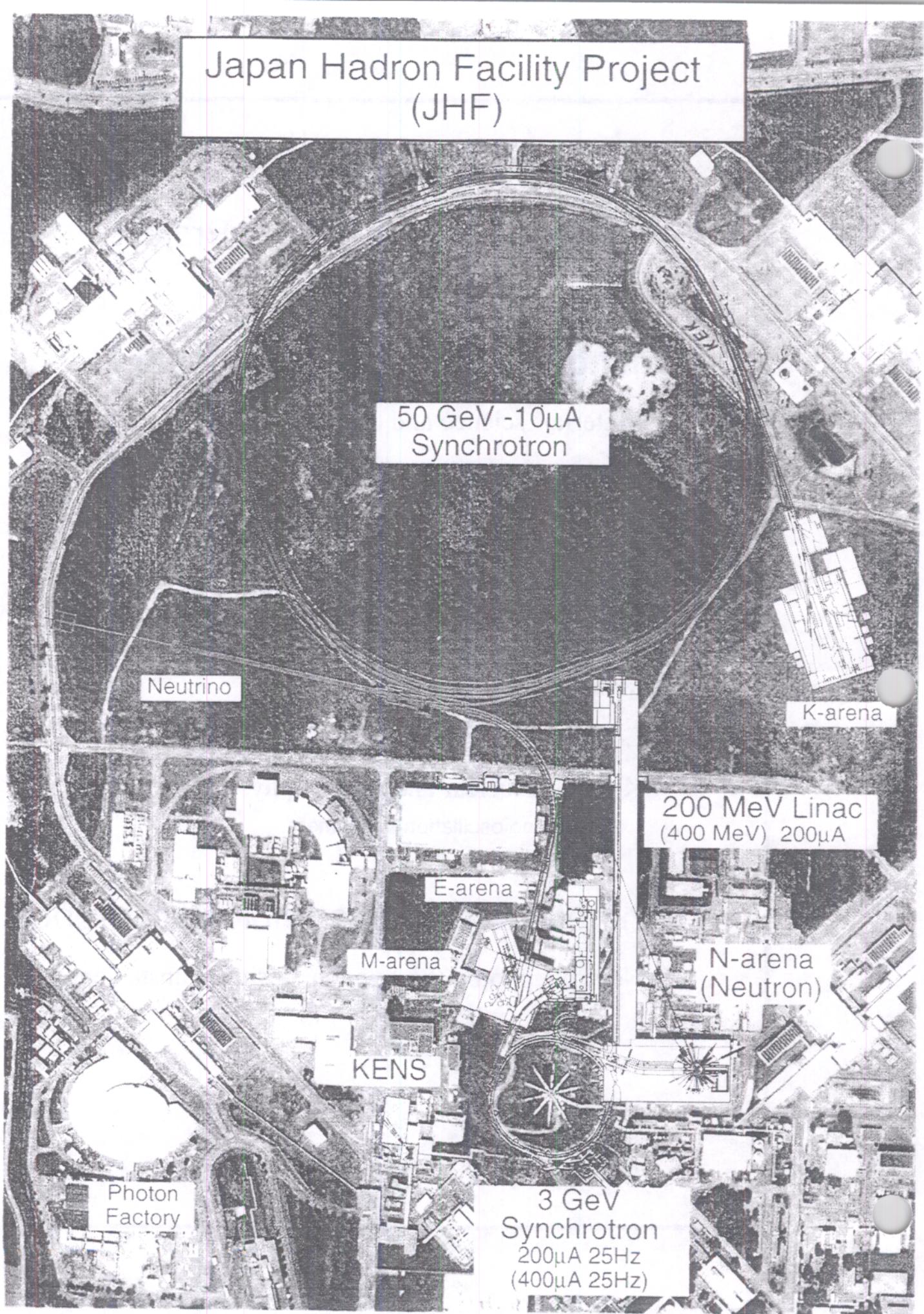
◆ Synthetic use of different kind of probes

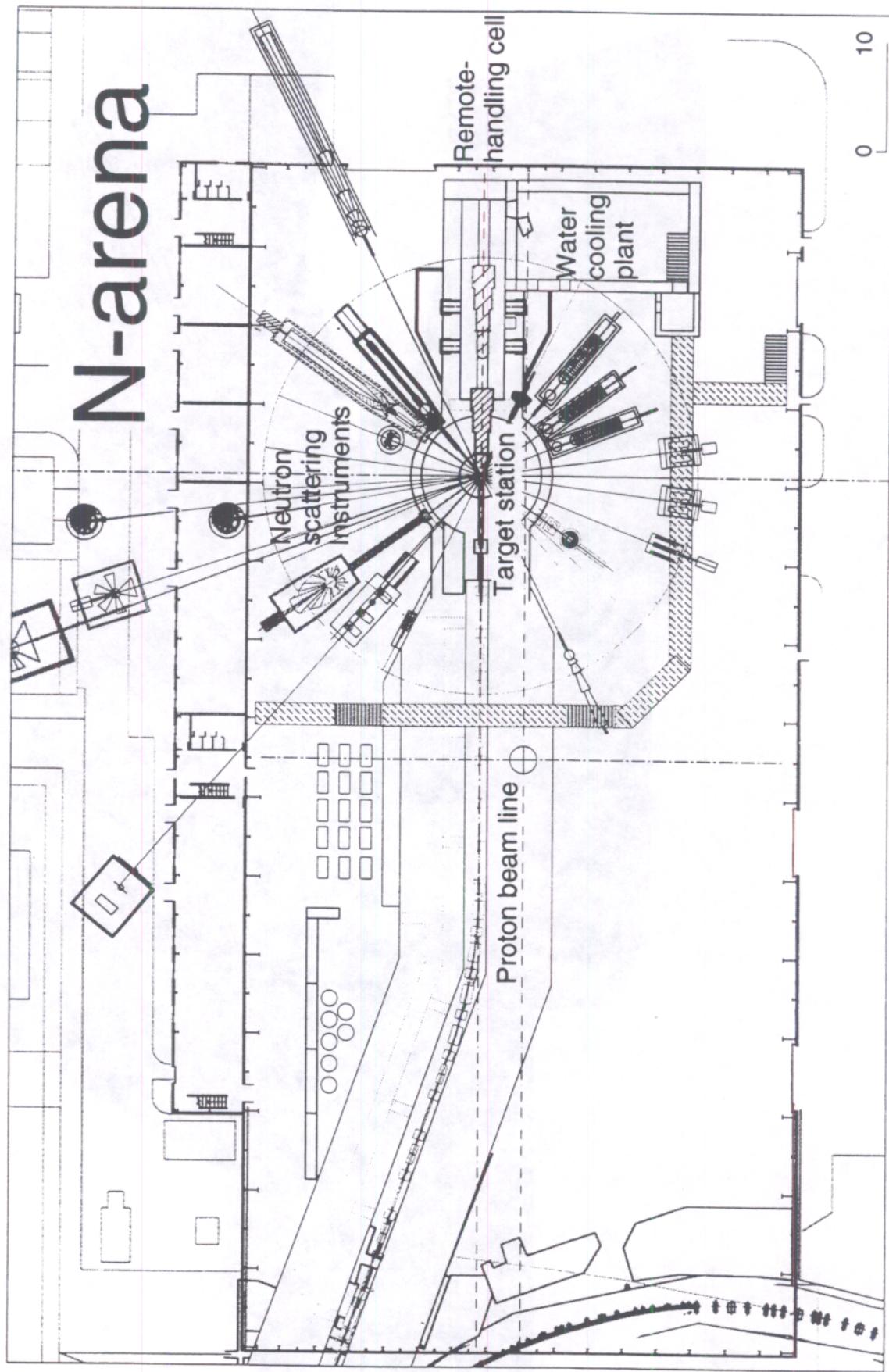
- Neutron, photon (SR), muon, positron, unstable nuclei



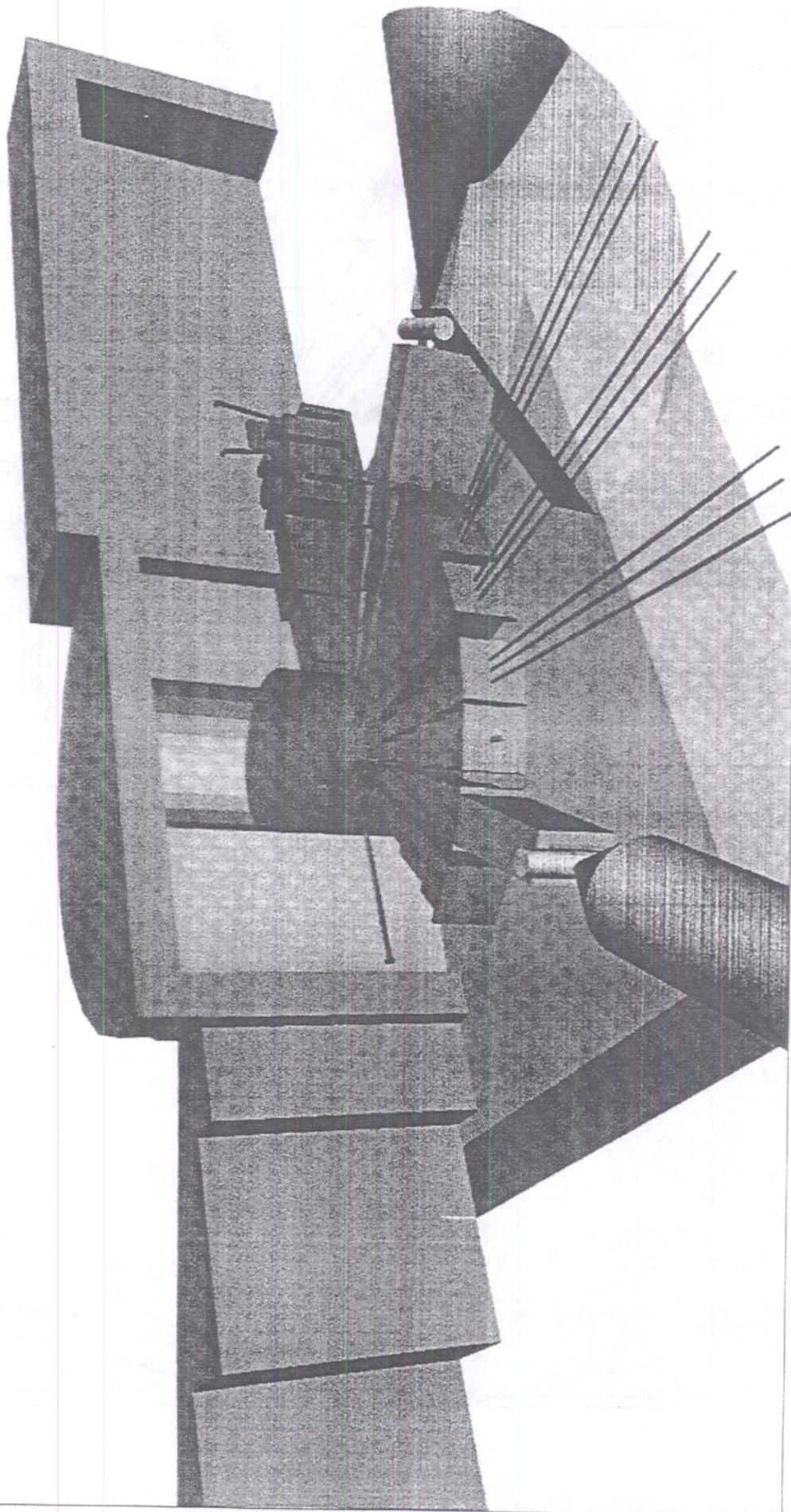
1997.9.13.

Japan Hadron Facility Project (JHF)



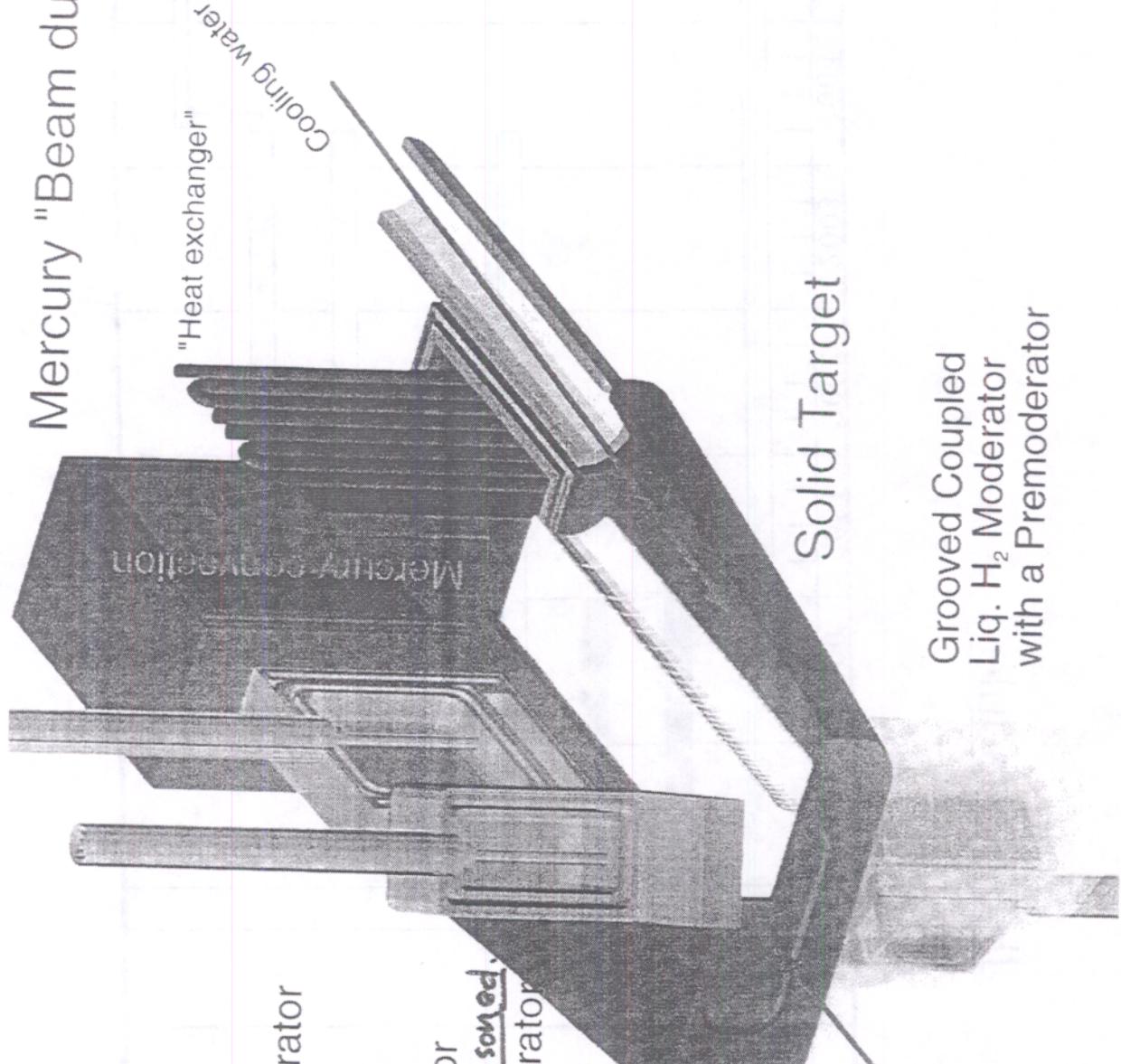


N-area Target Station



シェーディングレンダリングベースペクティブ全オブジェクト/エレメントのページに合わせてスケーリング

Mercury "Beam dump"



Decoupled Liq. H₂ Moderator
with a Premoderator

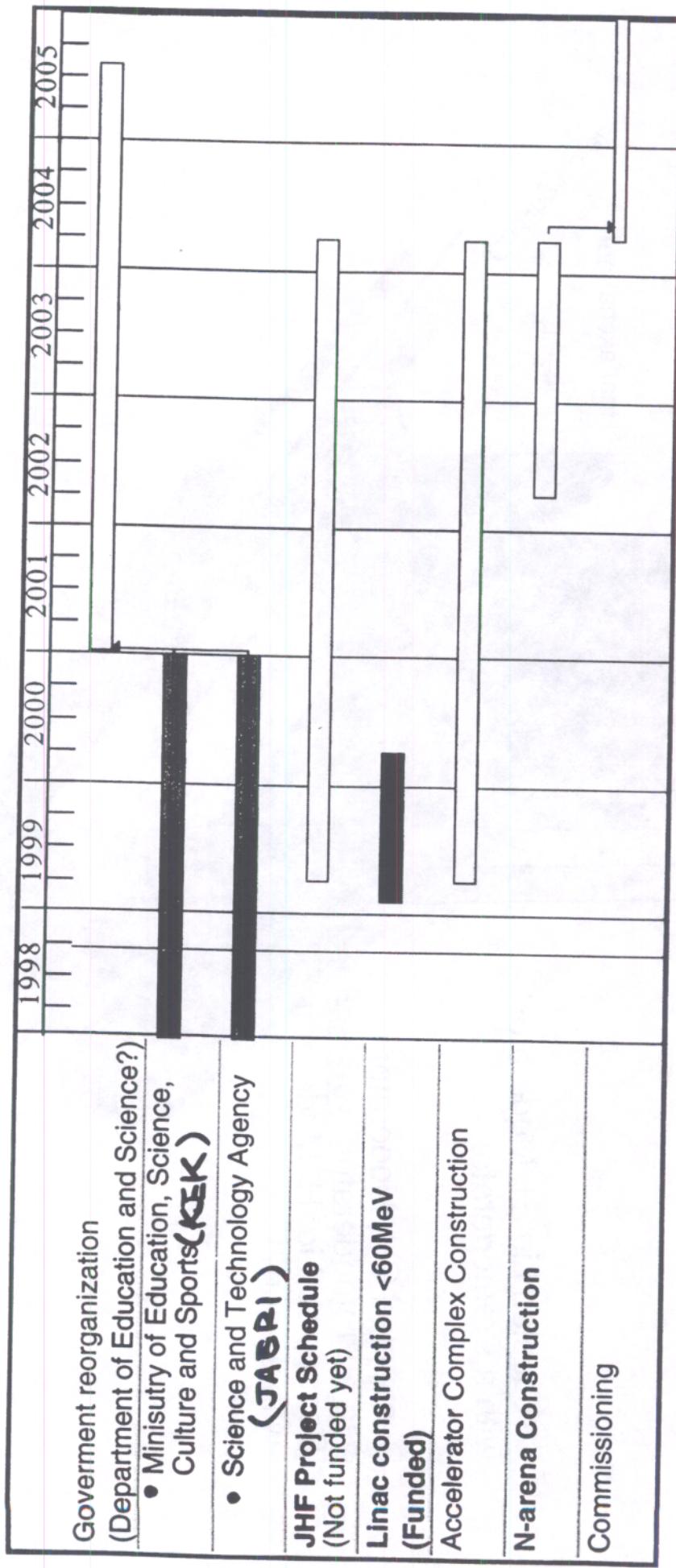
Decoupled CH₄ Moderator
with a Premoderator Poisoned.
(Decoupled Liq. H₂ Moderator
with poison?)

Solid Target

Grooved Coupled
Liq. H₂ Moderator
with a Premoderator

Rotated Beam

JHF Schedule



Fully-digitized encoding module for the 1D-PSD system at KENS

Setsuo Satoh & Michihiro Furusaka

Based on the Reuter-Stokes made
1/2" diameter 607 mm effective length PSD

20MHz-12 bit A/D conversion at the frontends
Digital peak-scan method
One-chip CPU encoders

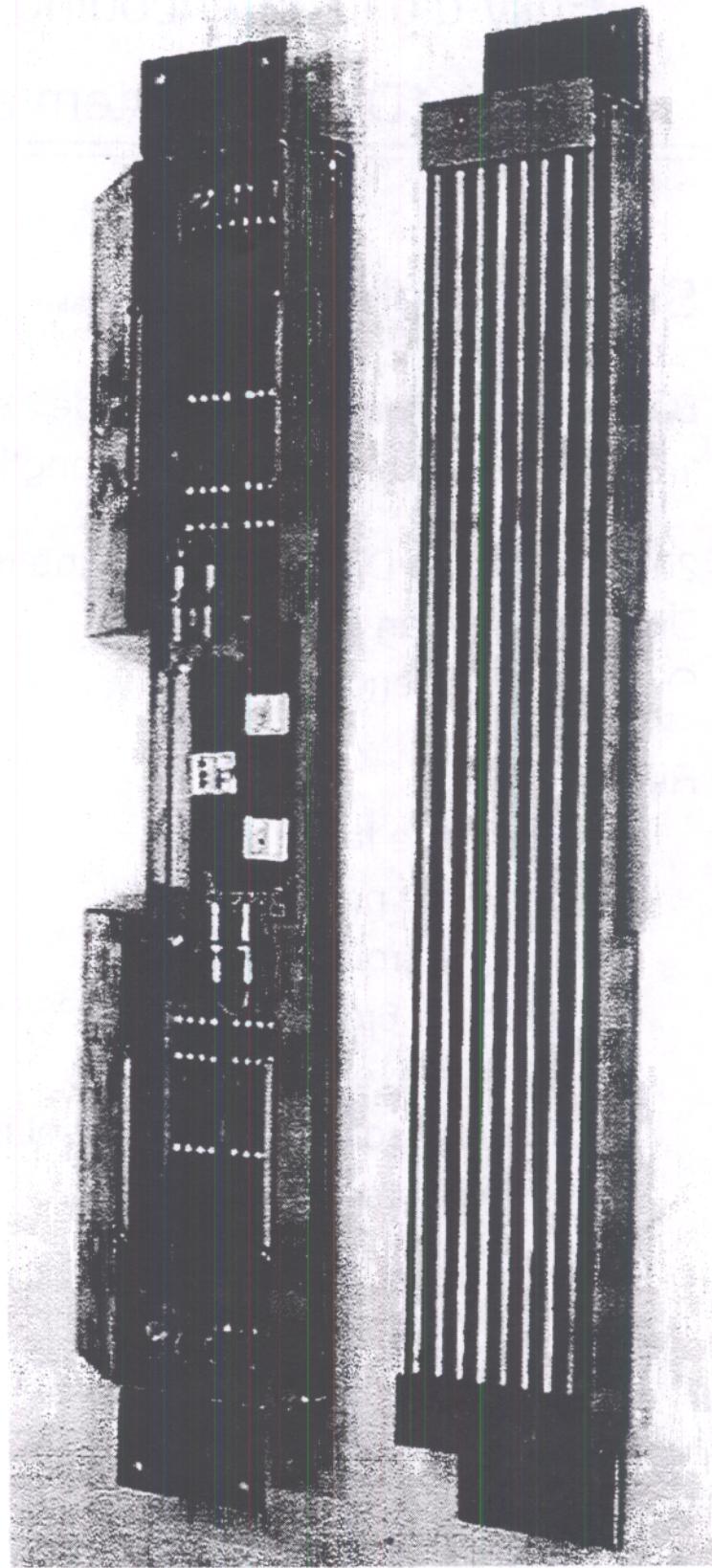
◆ Result in

- maintenance free
- no analogue potentiometers
- fully controlled by CPU
- 3 buffers @ 6 μ sec/recording/PSD
 - 25 μ sec/event encoding
 - improved resolution: 4 mm resolution
 - improved homogeneity

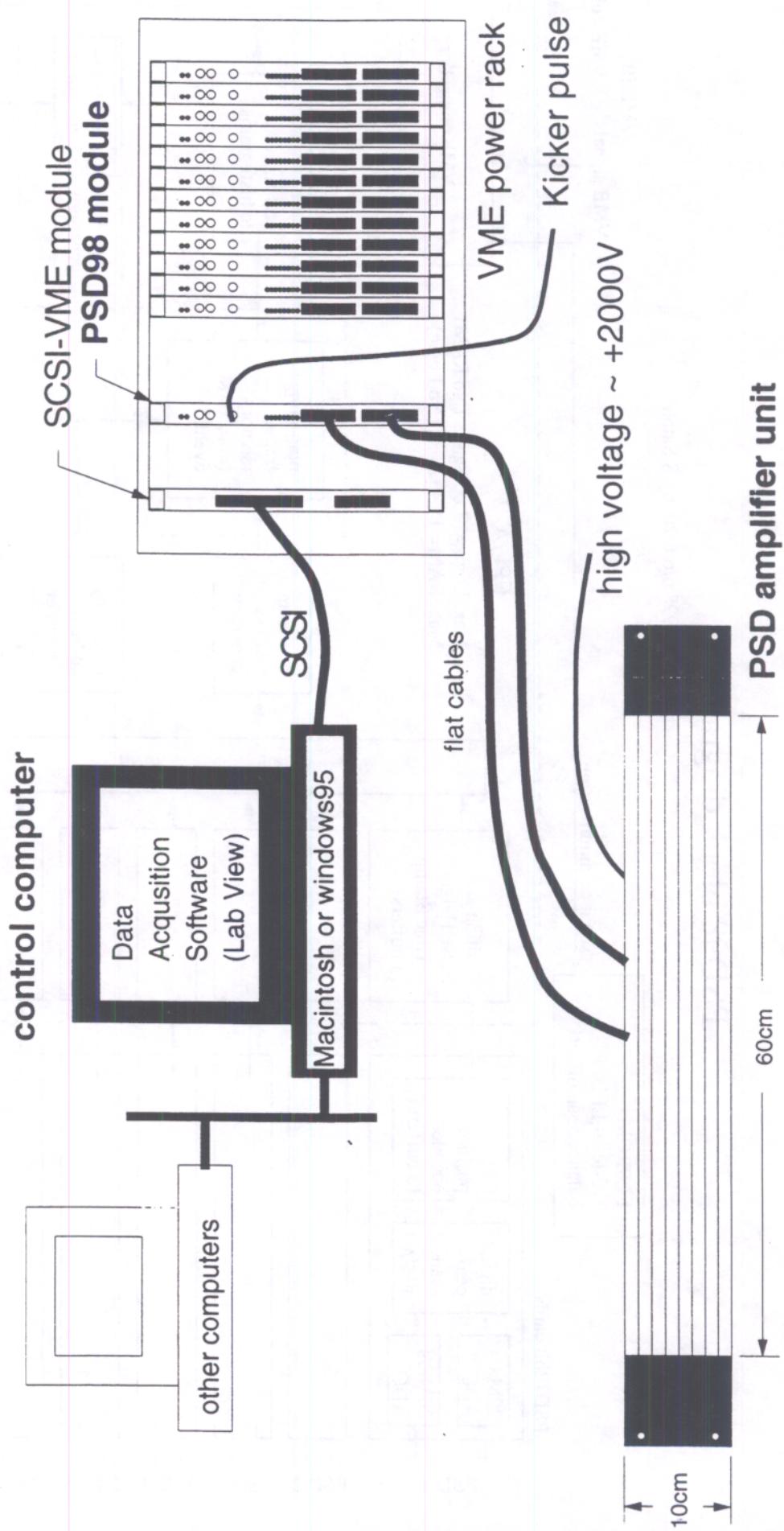


1998.9.14

PSD module
R/S Y₂: 607 nm eff. length
pre-/main- amplifier boards

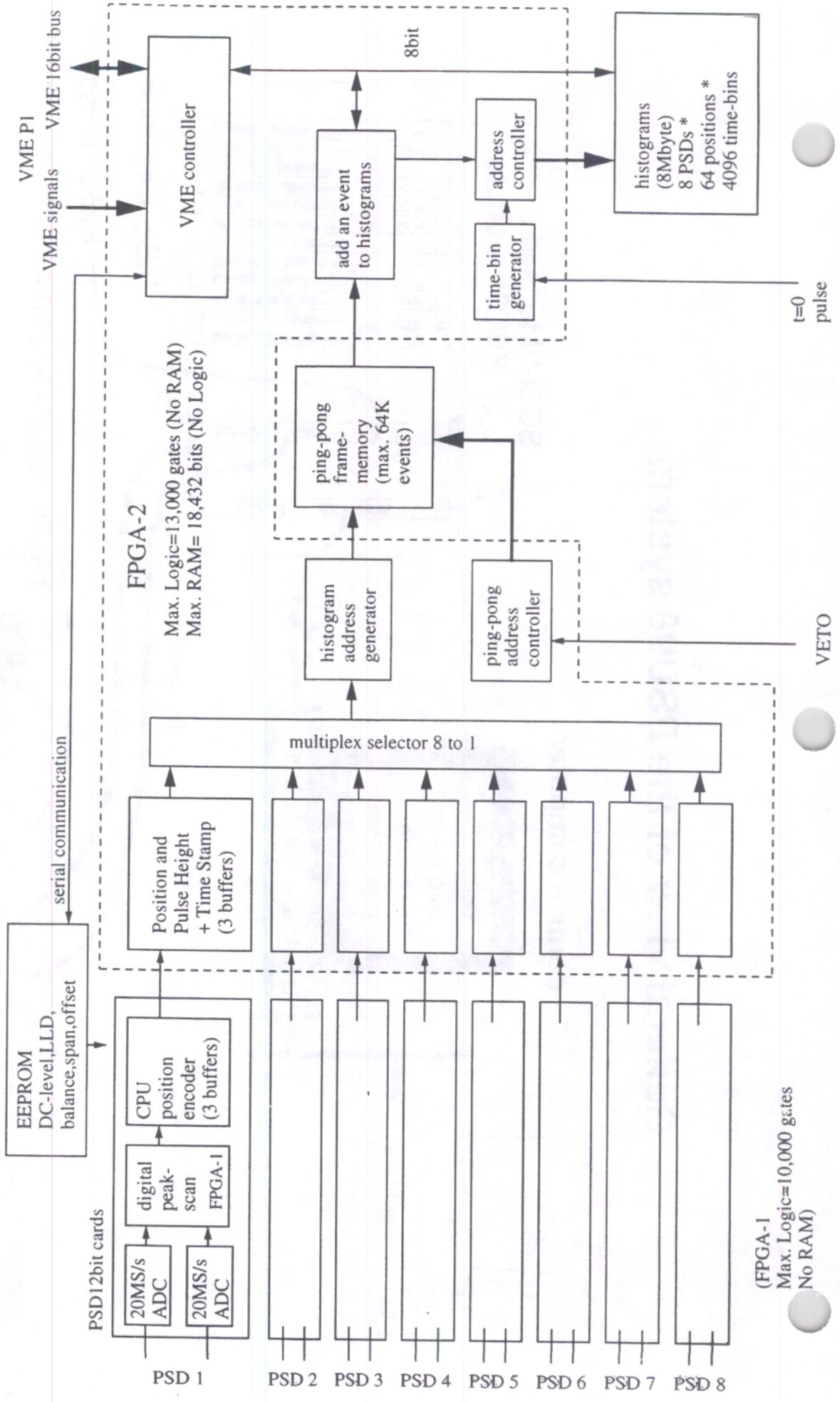


General view of the PSD98 system

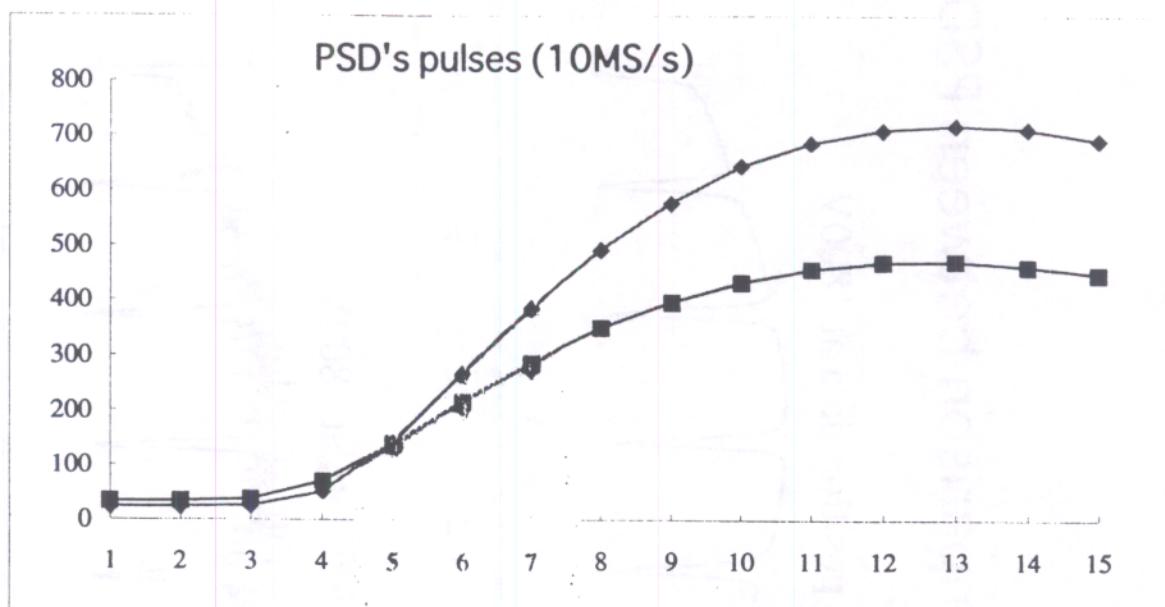
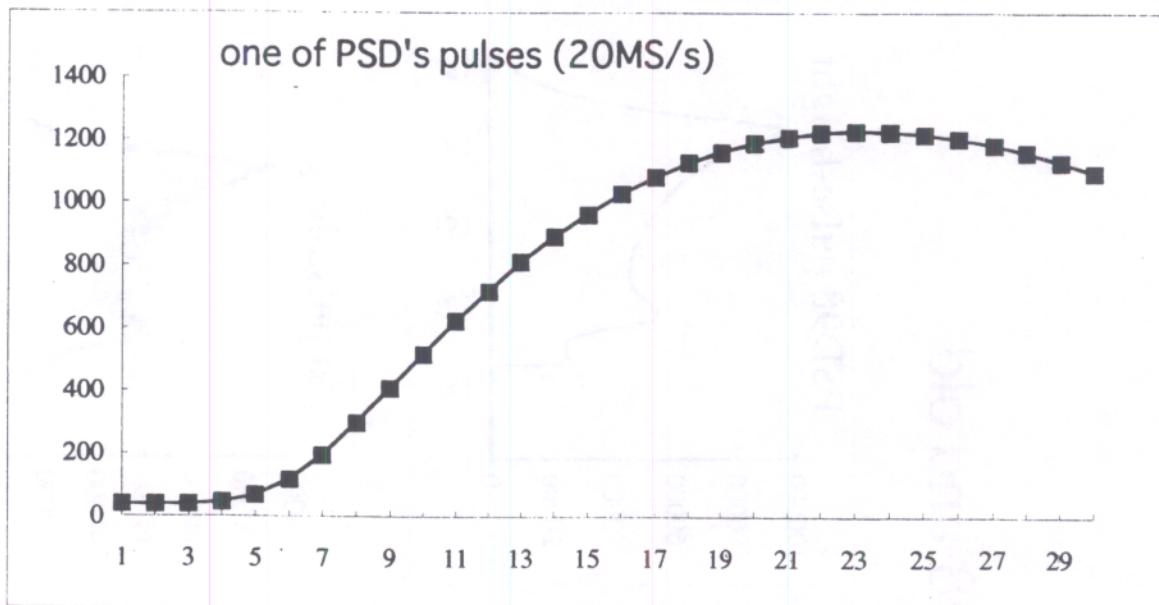


PSD98 block diagram

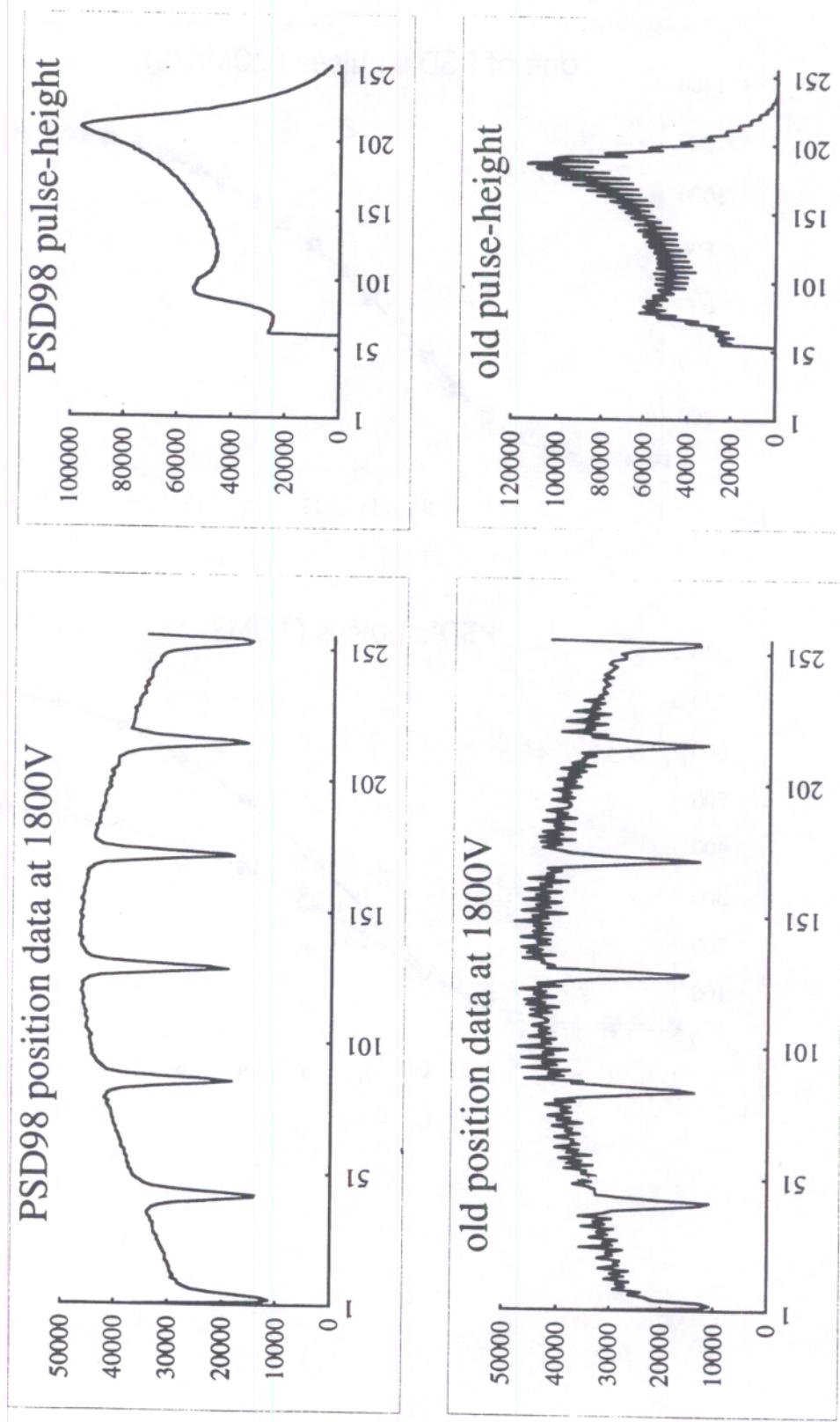
1998 6/6,8/20 by S.Satoh



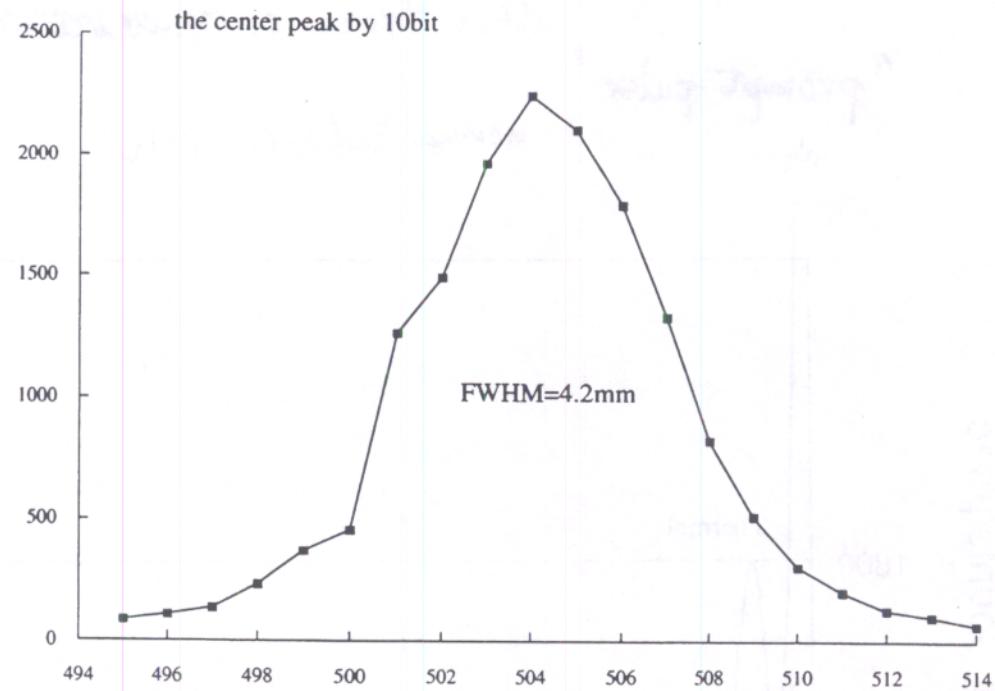
Data of the wave recorder



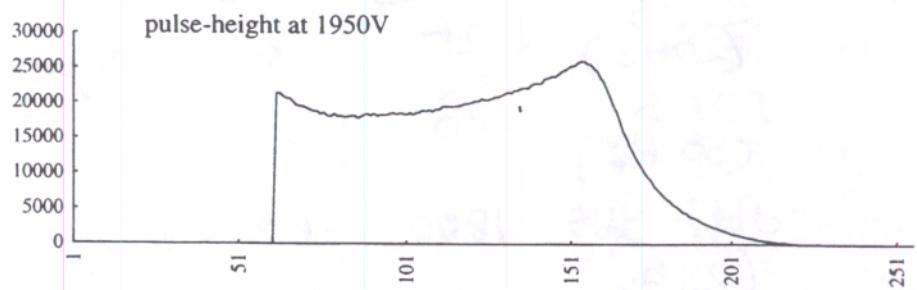
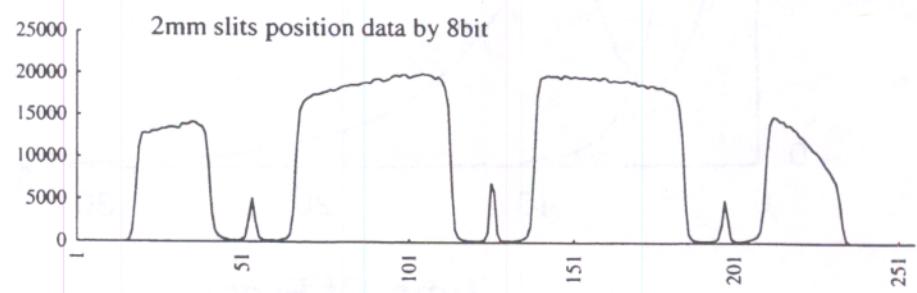
Comparison between PSD98 and old



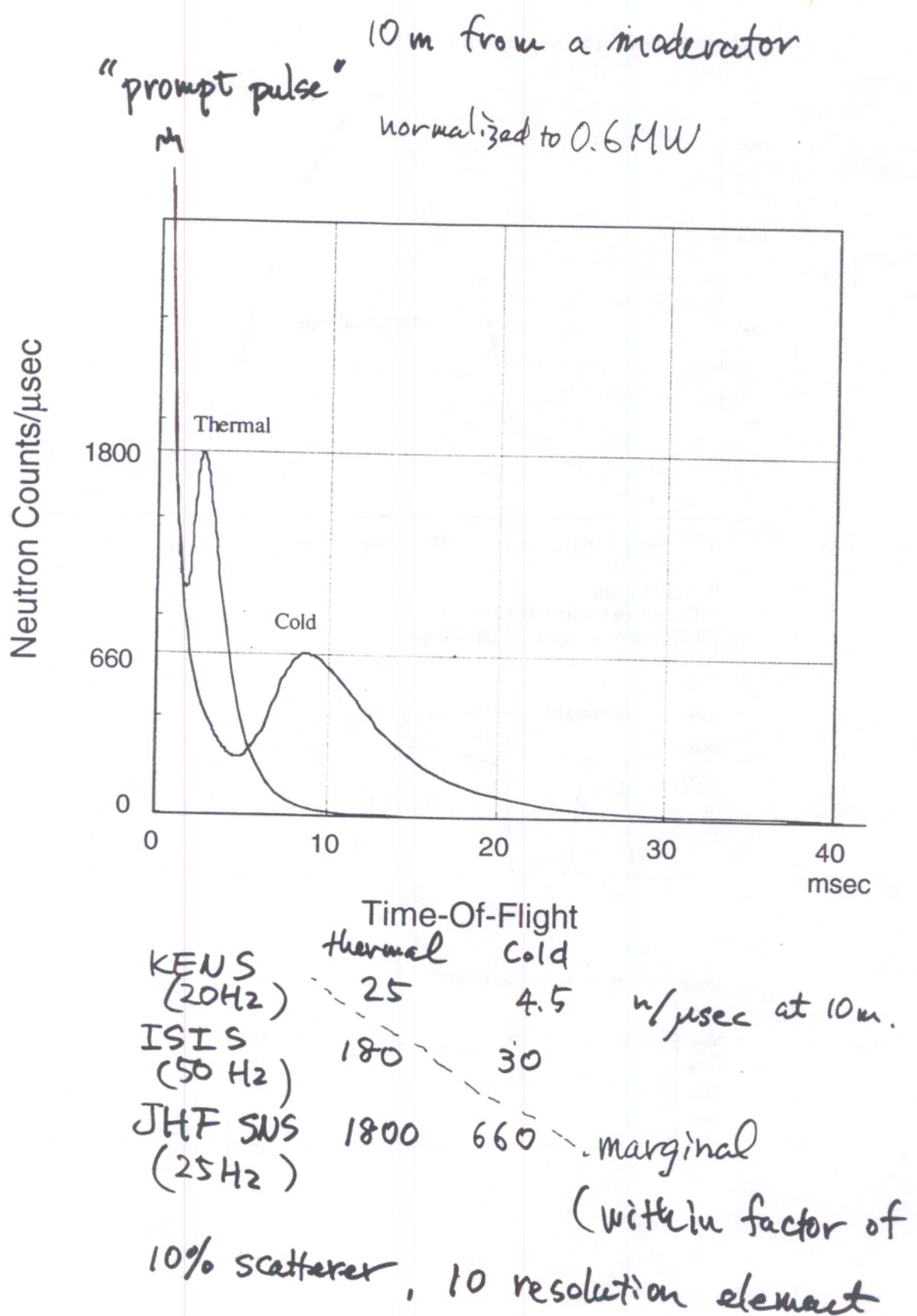
Position resolution of PSD98 (2mm slits at 1950V)



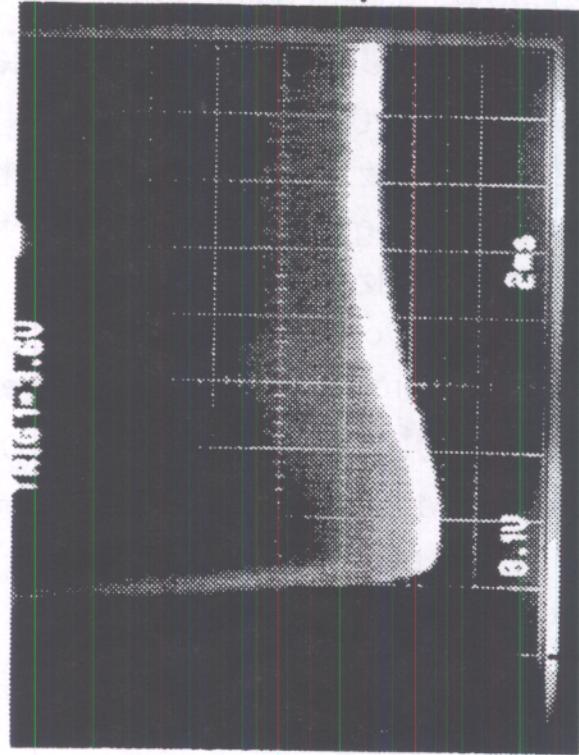
0.7mm=1 point
half width=6.6 points=4.62mm
FWHM=sqrt((4.62)²-(2)²)=4.2mm



Characteristics unique to TOF



..... "θ" level.



Summary

◆ Current status of KENS

New instruments at the new-guide hall.

- Small/wide-angle diffractometer (SWAN)

- High resolution powder diffractometer (Sirius)

- Polarized reflectometer (PORE²)

◆ Current status of JHF N-arena project

At the first stage: 200-MeV linac &

3GeV-200μA-25 Hz, 0.6MW proton synchrotron

For the second stage: upgrade the linac to 400MeV,

3GeV-400μA-25 Hz, 1.2MW

A part of linac up to 60MeV is funded.

The whole JHF project has not funded yet.

Current status of linear PSD development at KENS

We developed a fully-digitized encoding module

for the 1D-PSD system

Very good performance is achieved.

