

KEK

(High Energy Accelerator Research Organization, Japan)

Detector Technology Project
and Neutron Science

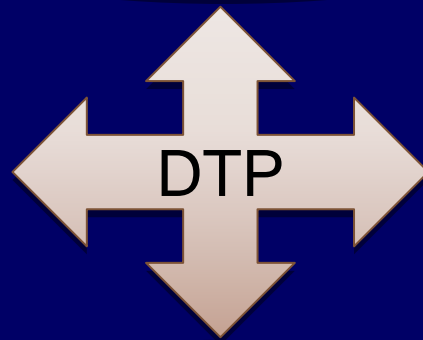
Junji Haba (KEK)



**KEK : international frontier research institute
employing accelerators to explore
universe, elementary particles, nuclei, matters and life**

Acc. Lab.
Construction &
operation
R&D for future acc.

IPNS
Particle physics
Nuclear physics

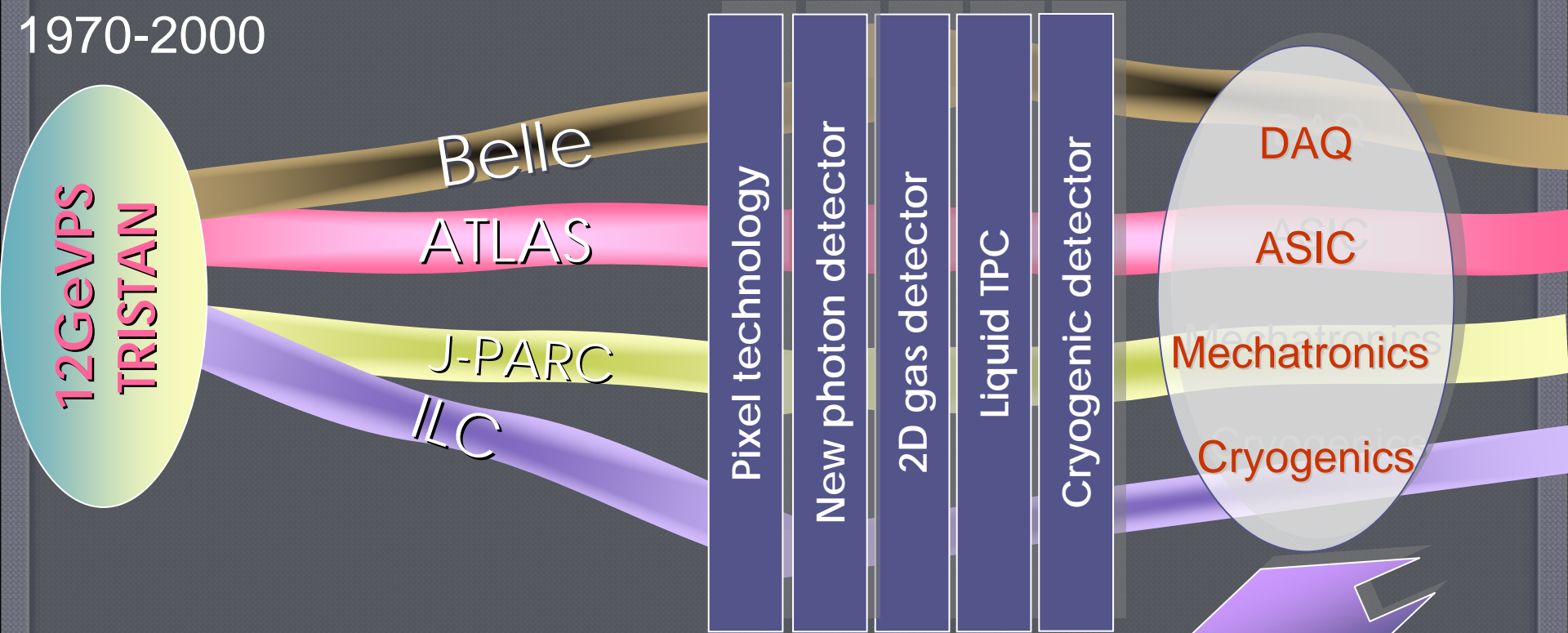


IMSS
Material science
Life Science

**Applied
Research Lab**
Radiation safety
Computing
Cryogenics
Mech. Engineering

Detector Technology Project (DTP)

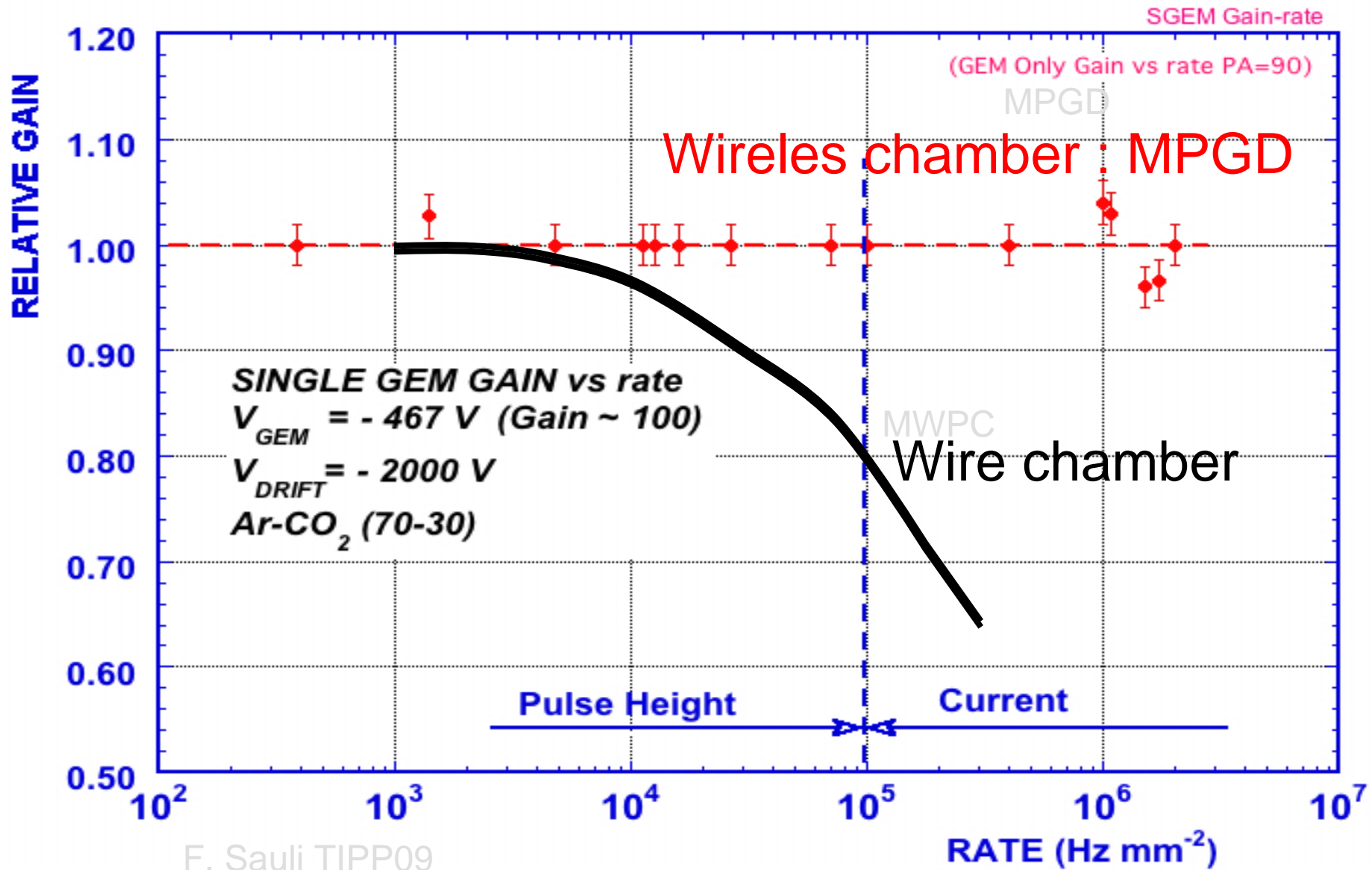
1970-2000



- Detector Technology is a basic strength for every research activity.
- Horizontal activities among the projects
- KEKDTP for Innovative Particle Detector is one of the keys to the future of KEK.

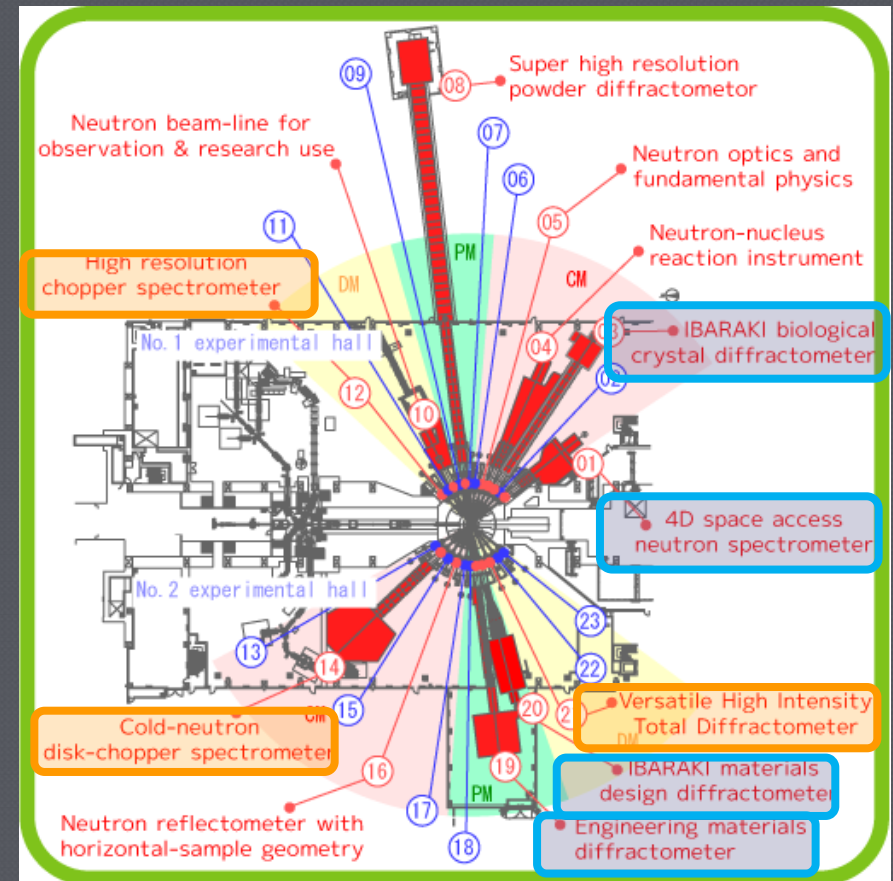
Ongoing Projects

1. MPGD and its application
2. GM-APD array : Pixelated Photon Detector (PPD)
3. SOI/vertical integrated pixel sensor
4. New Generation DAQ scheme
5. ASIC development
6. Liquid Xenon/Argon TPC application
7. Superconducting Detector (SCD)
8. High speed pixel device (Fpix) using an APD array



New Generation DAQ scheme (Sato & Muto)

- Distributed network DAQ with SiTCP and DAQ-middleware.
- Match for “small” scale experiment
- Being “standard” system in the J-Parc neutron beam lines.

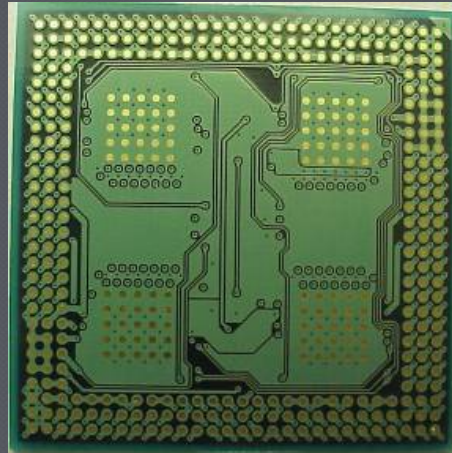
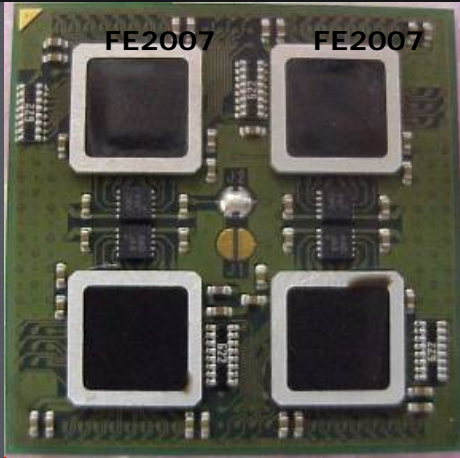


working

preparing

Joint effort exmple ASIC+DAQ for MPGD

30mm



Mucti Channel Module
MCM

250 mm

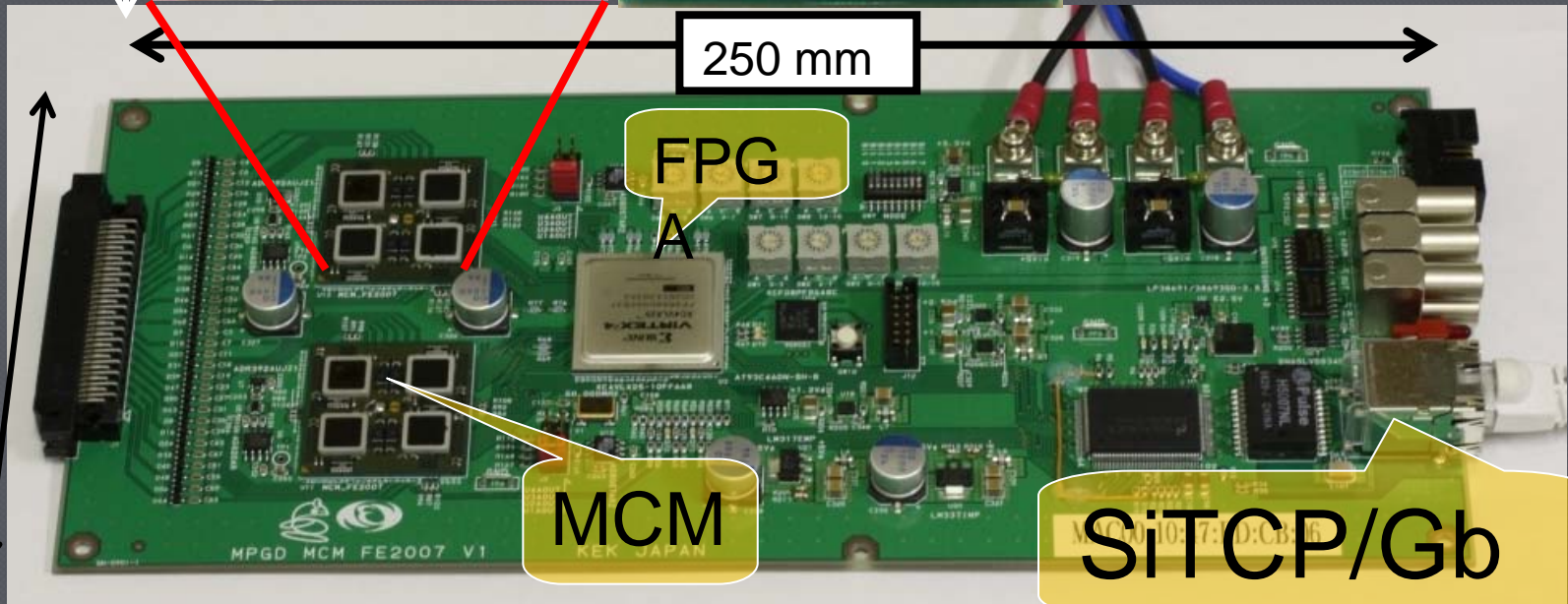
110 mm

FPG

A

MCM

SiTCP/Gb



Summary

- DTP is another important key for the future of a big institute like KEK.
- DTP can bridge among various fields of basic science like Particle/Nuclear physics and Materia/Life science in a practical way.
- DTP activities can also bridge among various institutes and countries easily and naturally.
- DTP can bridge between Basic research and Industry/Society
- Outcome of DTP should also be useful for the instrumentations to be used in Compact neutron source facilities.

SOI MPW (Multi Project Wafer) run

Good example of global collaboration

