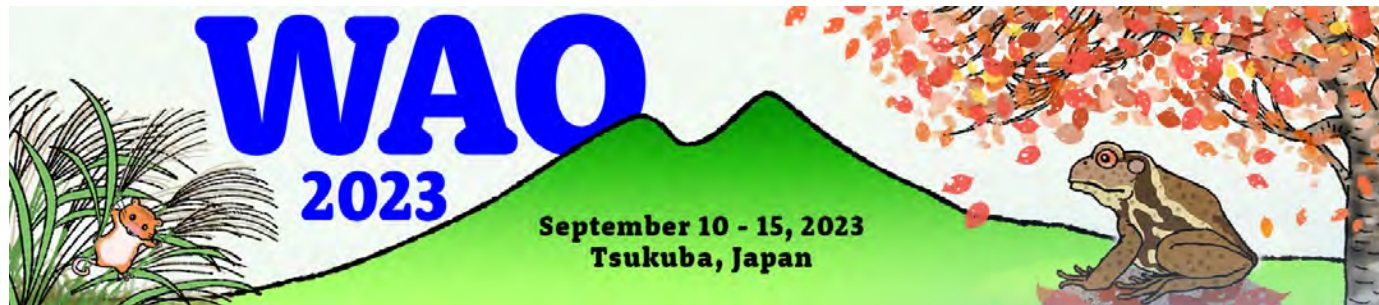


13th Workshop on Accelerator Operations
Sep. 11, 2023

Welcome address

Tadashi Koseki

Accelerator Laboratory, KEK



13th Workshop on Accelerator Operations 10th - 15th September 2023 Tsukuba, Japan

Tsukuba City :

- the largest “ Science City ” in Japan
 - ~ 300 national and private research institutes
 - ~9,000 foreign residents from ~140 countries
- a rich natural environment with a view of Mt. Tsukuba



KEK and NIRS-QST

KEK Tsukuba campus

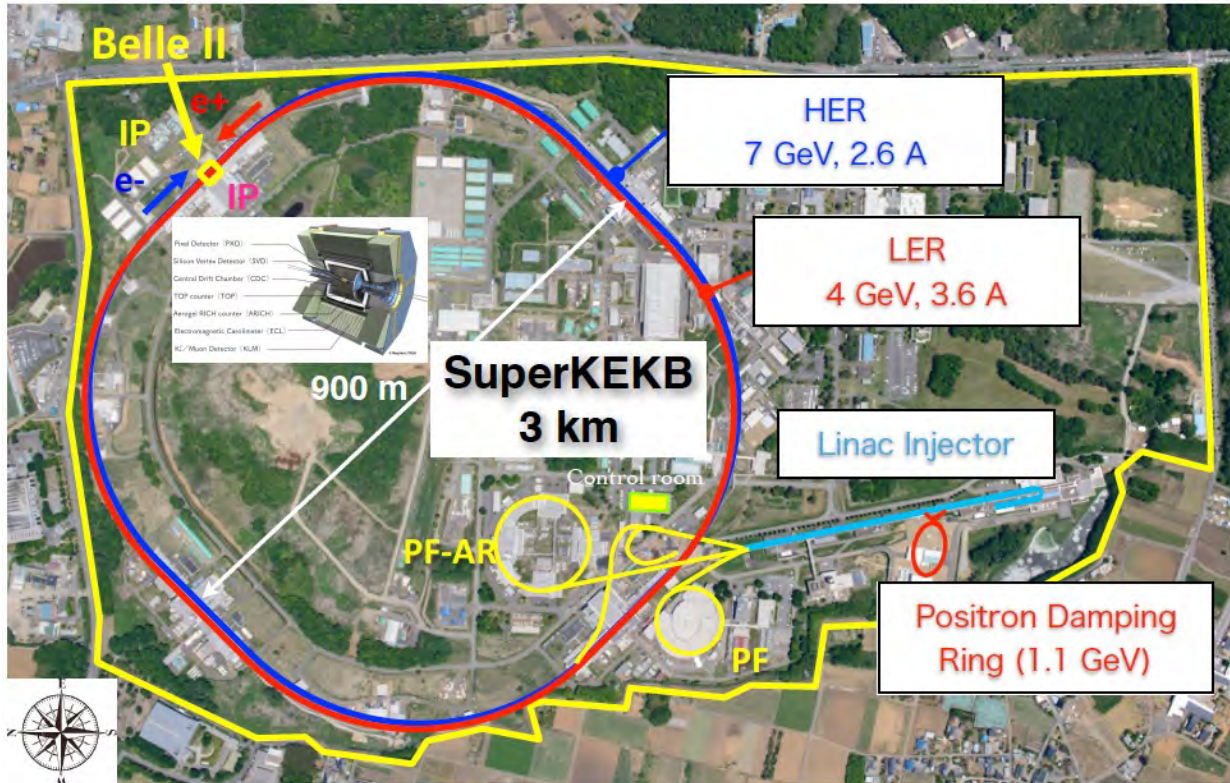
KEK Tokai campus



NIRS-QST



Accelerators in KEK Tsukuba Campus



PF (Photon Factory):

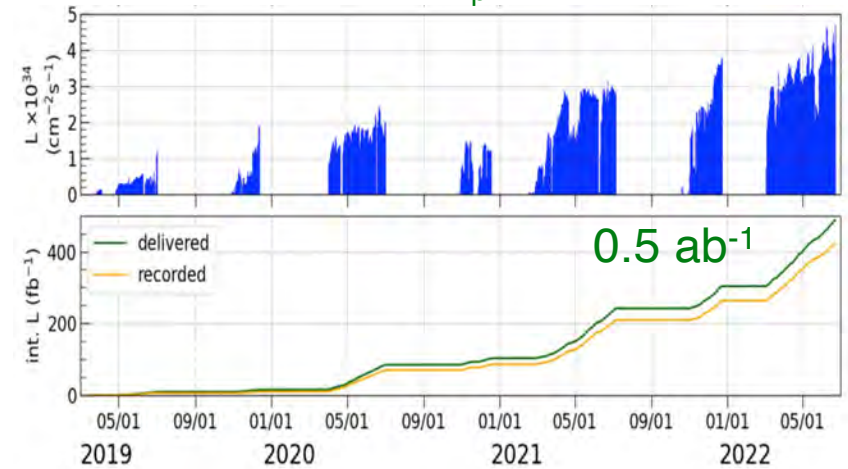
2.5 GeV, Light source for VUV and soft X-ray

PF-AR:

5-6.5 GeV for hard X-ray, ~50 mA single bunch for time resolved experiments

SuperKEKB

$$L_p \sim 4.7 \times 10^{34} \text{ cm}^{-2}\text{s}^{-1}$$



LS1 from 2022.6 - 2023.12

Injector Linac

delivers beams with simultaneous top up injection to four rings

Advanced accelerator facilities at KEK Tsukuba Campus

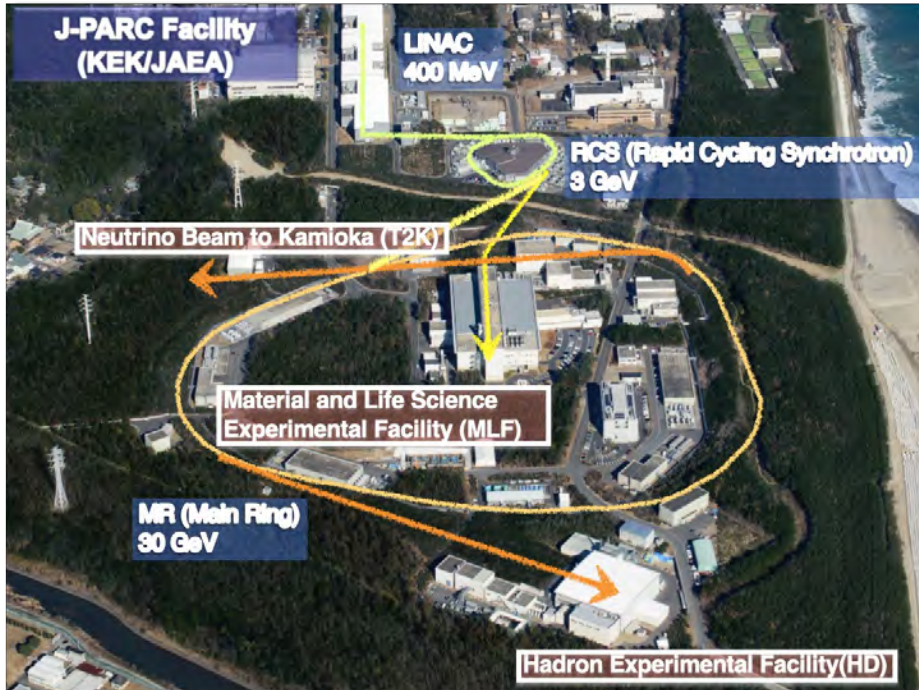
R&D for future accelerators, ILC and accelerator application of industrial and medical uses



Accelerator Test Facility (ATF) : nano-beam R&D

compact ERL (cERL) : study of application

Accelerators in KEK Tokai Campus



J-PARC, Japan Proton Accelerator Research Complex

Delivered max. beam power :
RCS

- 840 kW for the MLF users in routine operation
- 1 MW for 36 hours as demonstration

MR FX for T2K

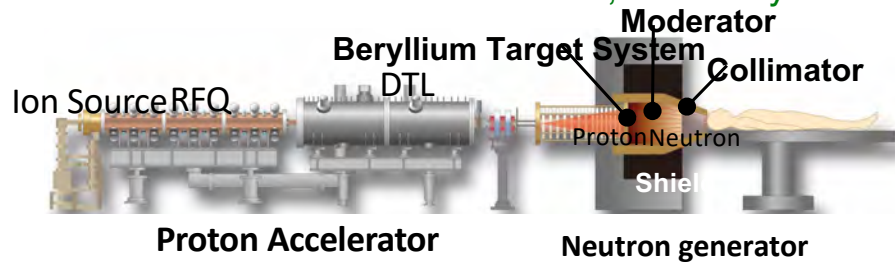
- 535 kW for the T2K experiment
- 760 kW equivalent single shot as demonstration

MR SX for HD

- 64 kW for the HD users

iBNCT, the linac-based BNCT project

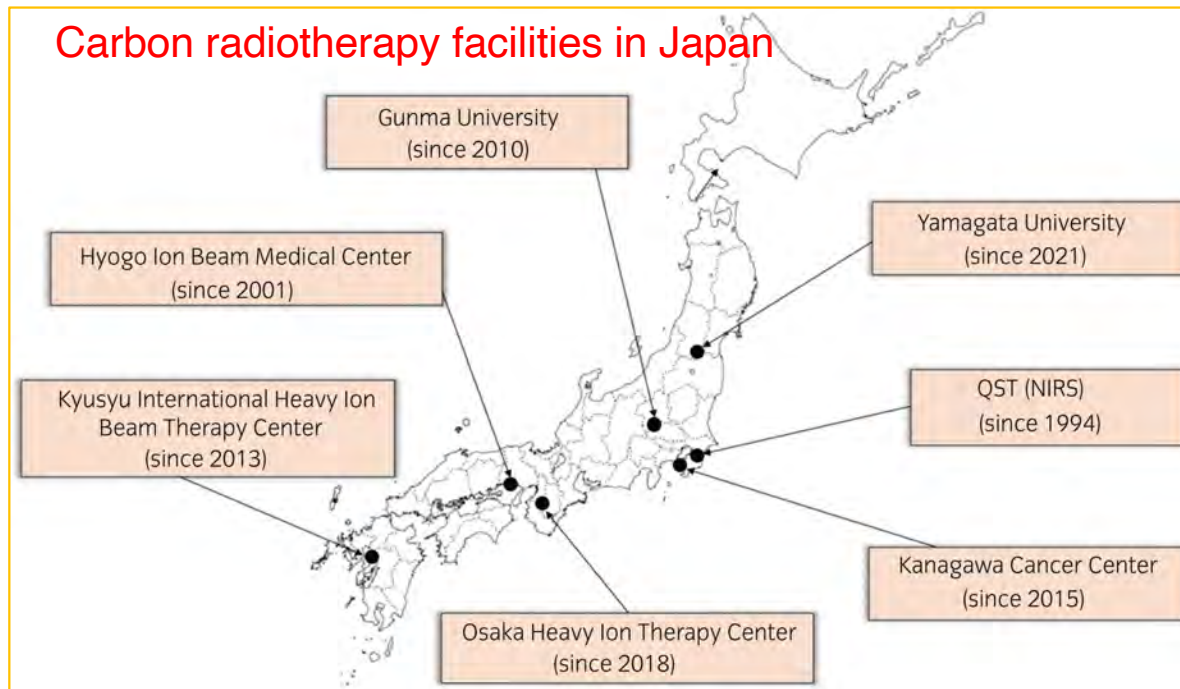
In collaboration with Institute of Medicine, University of Tsukuba



Non-clinical test : 2021 - 2022
Clinical test will start in JFY2023

Carbon-ion radiotherapy in QST

Worldwide, 12 accelerator facilities for carbon-ion radiotherapy are in operation, and three under construction.



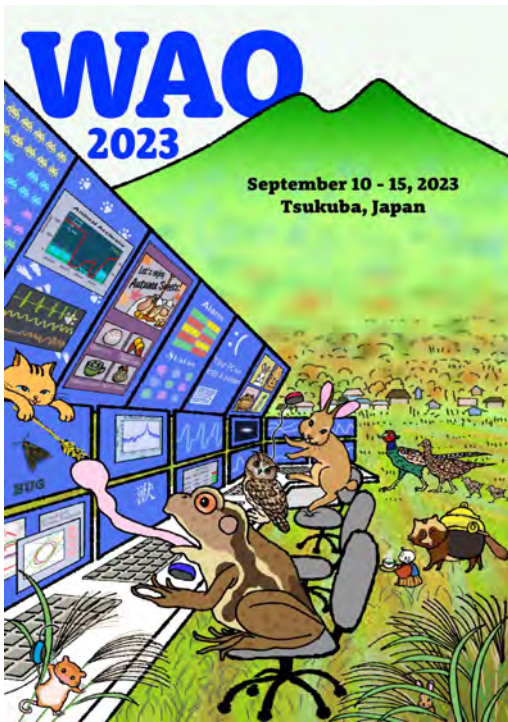
H. Ishikawa *et al.*, *Int. J. Urol.* 29 (2022) , p. 1109



HIMAC in QST



Rotating gantry with superconducting magnets



International Program Committee

Brian Freeman (JLAB)
Kazuro Furukawa (KEK)
Kathleen Genge (TRIUMF)
Rossano Giachino (CERN)
Laurent Hardy (ESRF)
Yoshiyuki Iwata (QST)
Glen Johns (ORNL)
Gregory Marr (BNL)
Montse Pont (ALBA-CELLS)
Stephan Reimann (GSI)
Peter Schuh (SLAC)
Jun Xing (IHEP)
Wenzhi Zhang (SINAP)

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Hikaru Souda (Yamagata Univ.)
Tetsuhito Kadowaki (Accelerator Engineering Corporation)
Shinya Sasaki (KEK)

Please enjoy discussion, not only about excellent achievements but also various failures, to improve performance of the accelerator facilities.

The best part of this workshop series is that we can frankly discuss our failures. It is very valuable to be able to do that. Have a good workshop !