

A Message from an Accelerator Laboratory

Mitsuaki Nozaki
(KEK)

Future of HEP

- HEP projects will be bigger, longer, more expensive
- The HEP community is considering;
 - → New scheme of international cooperation
 - e.g. CERN's geographical enlargement, newly formed AFAD (Asia Forum for Accelerator and Detector)
 - being discussed at ICFA, FALC, ...
 - → Support from the public
 - Outreach
 - Spin-off of accelerators and accelerator technologies
 - → Collaboration with astroparticle physics
 - e.g. CERN's scientific enlargement
 - KEK: T2K, QUIET, gravitational wave, ...
 - → Innovative accelerator technologies
 - e.g. Laser- or beam- driven wake field acceleration

Route towards Reality

--- A balanced approach ---

- **Diversity**

- In Asia many small groups are interested and engaged in novel and advanced accelerator technologies,
 - AIST, JAEA, KEK, Osaka, Tokyo, ... (Japan)
 - IHEP, IOP, SJTU, Peking, ... (China),
 - GIST (Korea), BINP (Russia), ...
- Catching up with Europe and U.S.
- Incubate various ideas and approaches.
 - KEK will make use of several cooperation frame works, such as AFAD, US-Japan Program, TYL, CERN-KEK collab.

- **Coordination**

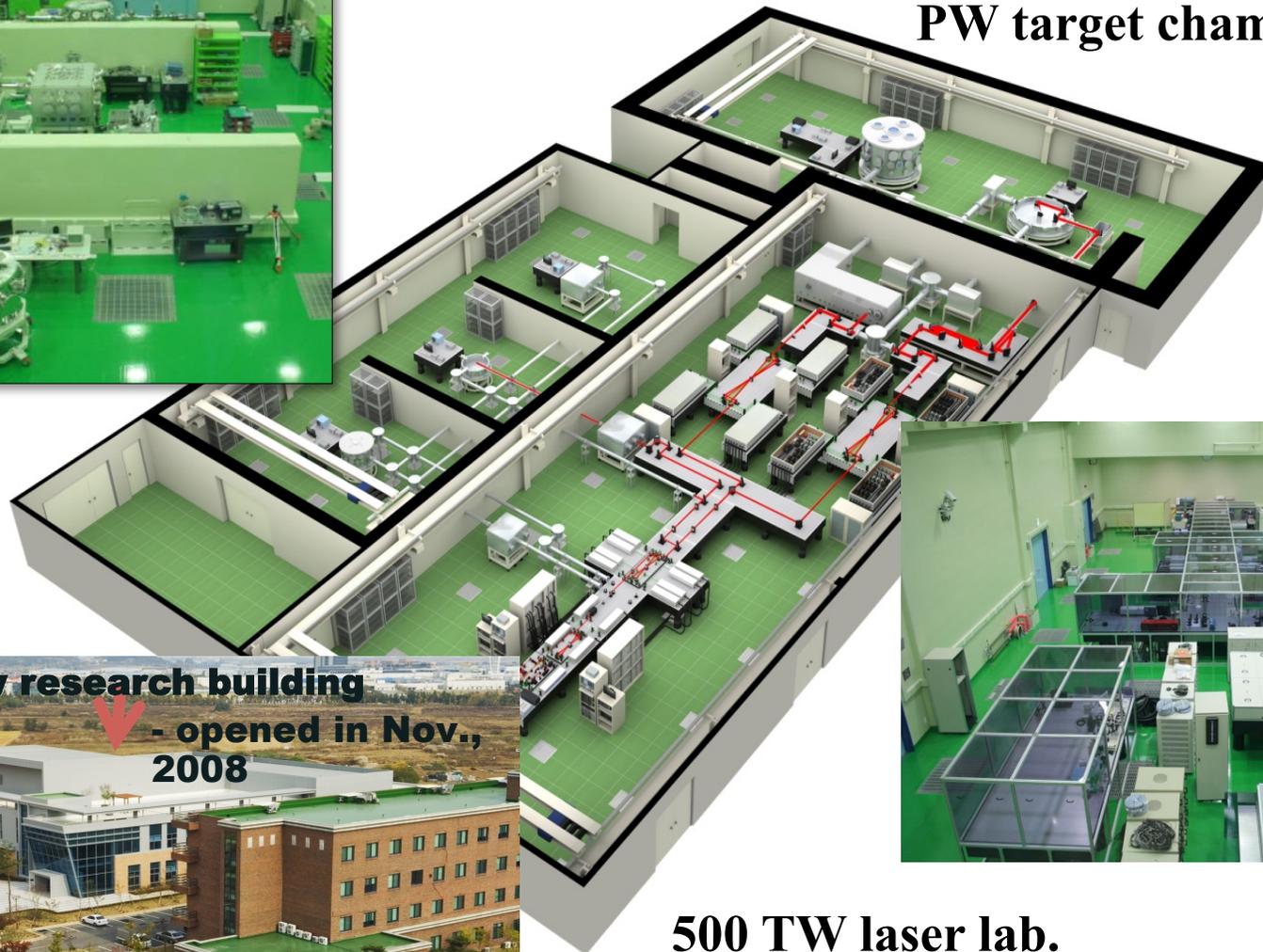
- Develop some promising ideas by coordinated R&Ds.
 - e.g. Bridgelab, BELLA/FACET
- Activities in Asia are to be organized in future.

Ultrashort Quantum Beam Facility (UQBF)

Lab for 100 TW laser



PW target chamber



New research building
- opened in Nov.,
2008

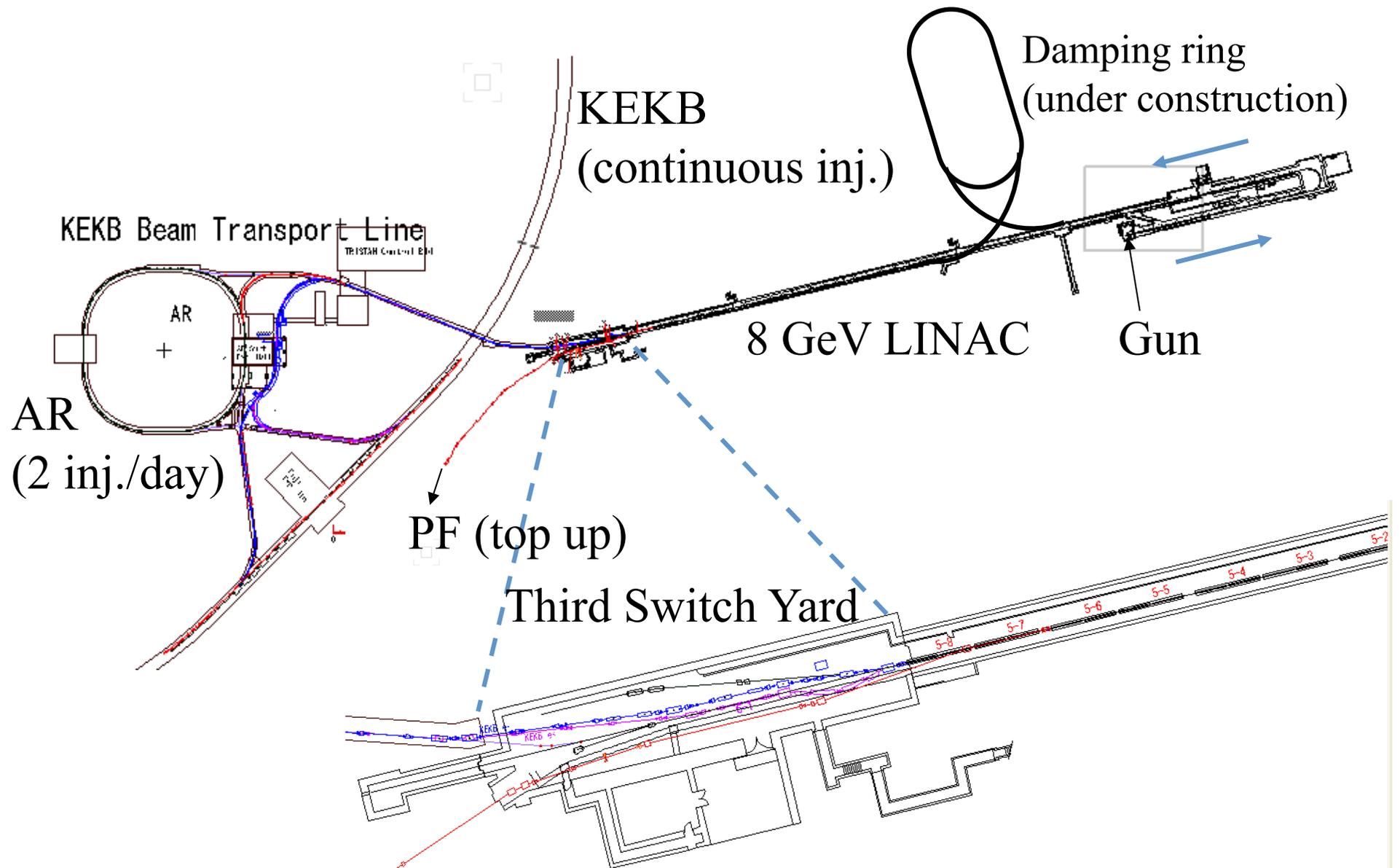


500 TW laser lab.

Brief Introduction of Our Group

- Foundation Time: Nov. 1, 2006
- Group Members: **We are young & weak.....**
 - Prof. Gao Jie (Leader), Prof. Zhu Xiongwei;
 - Ph. D students: Li Dazhang, He An (Graduated @ 2010-07)
- Fund Support:
 - Innovation fund of CAS
 - National Nature Science
- Collaborated Institutes:
 - IoP (CAS, China), LRC (CERN, Switzerland), LBNL (USA)





Beam-driven plasma wake field and di-electric wake field acceleration

How to proceed on the Long and Winding Road

- Although the route towards reality will be long and difficult, we have to go forward to explore energy frontier beyond LHC and ILC/CLIC.
- We need fresh talent and frontier spirit that are the most valuable asset of the HEP community.
- In order to attract young researcher/students, the HEP community should provide a systematic and continuous training program.
 - e.g. a school providing multi-disciplinary courses
 - Accelerator, laser, plasma and particle physics
 - Can be co-organized by accelerator laboratories consolidating existing regional schools.

KEK keeps encouraging every
challenging R&D to explore the
fundamental law of the Nature

Thank you