

# A Message from an Accelerator Laboratory

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# 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

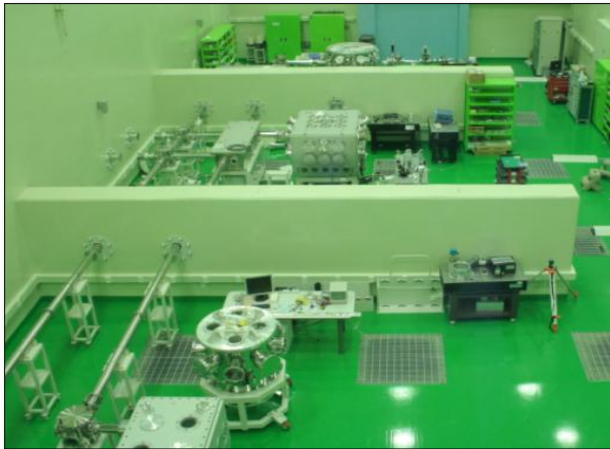
- In Asia many small groups are interested and engaged in novel and advanced accelerator technologies,
  - AIST, JAEA, KEK, Osaka, Tokyo, ... (Japan)
  - IHEP, IOP, SJTU, Peking, ... (China),
  - GIST (Korea), BINP (Russia), ...
- Catching up with Europe and U.S.
- Incubate various ideas and approaches.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

- Coordination

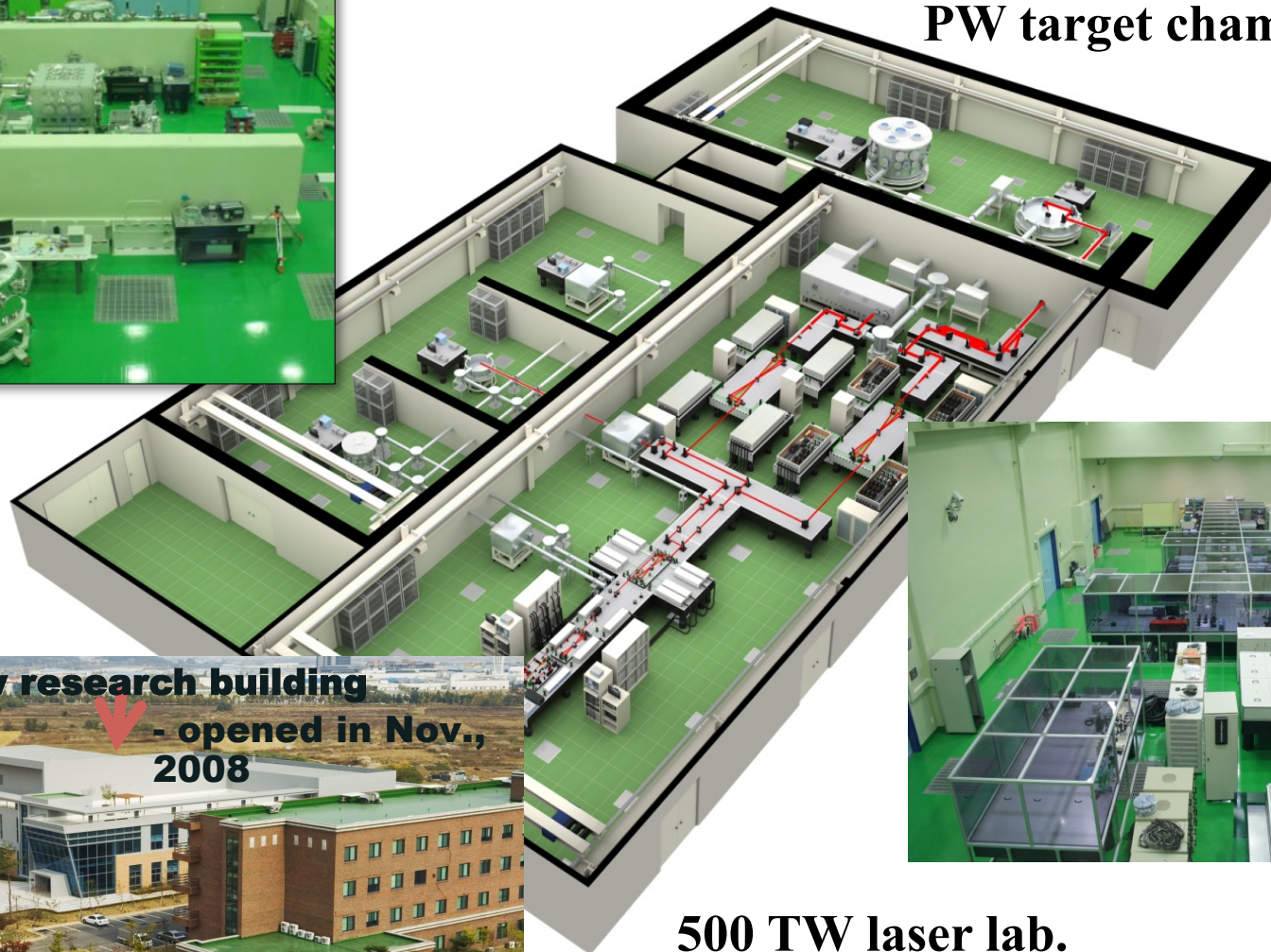
- Develop some promising ideas by coordinated R&Ds.
  - e.g. Bridgelab, BELLA/FACET
- Activities in Asia are to be organized in future.

# Ultrashort Quantum Beam Facility (UQBF)

Lab for 100 TW laser



PW target chamber



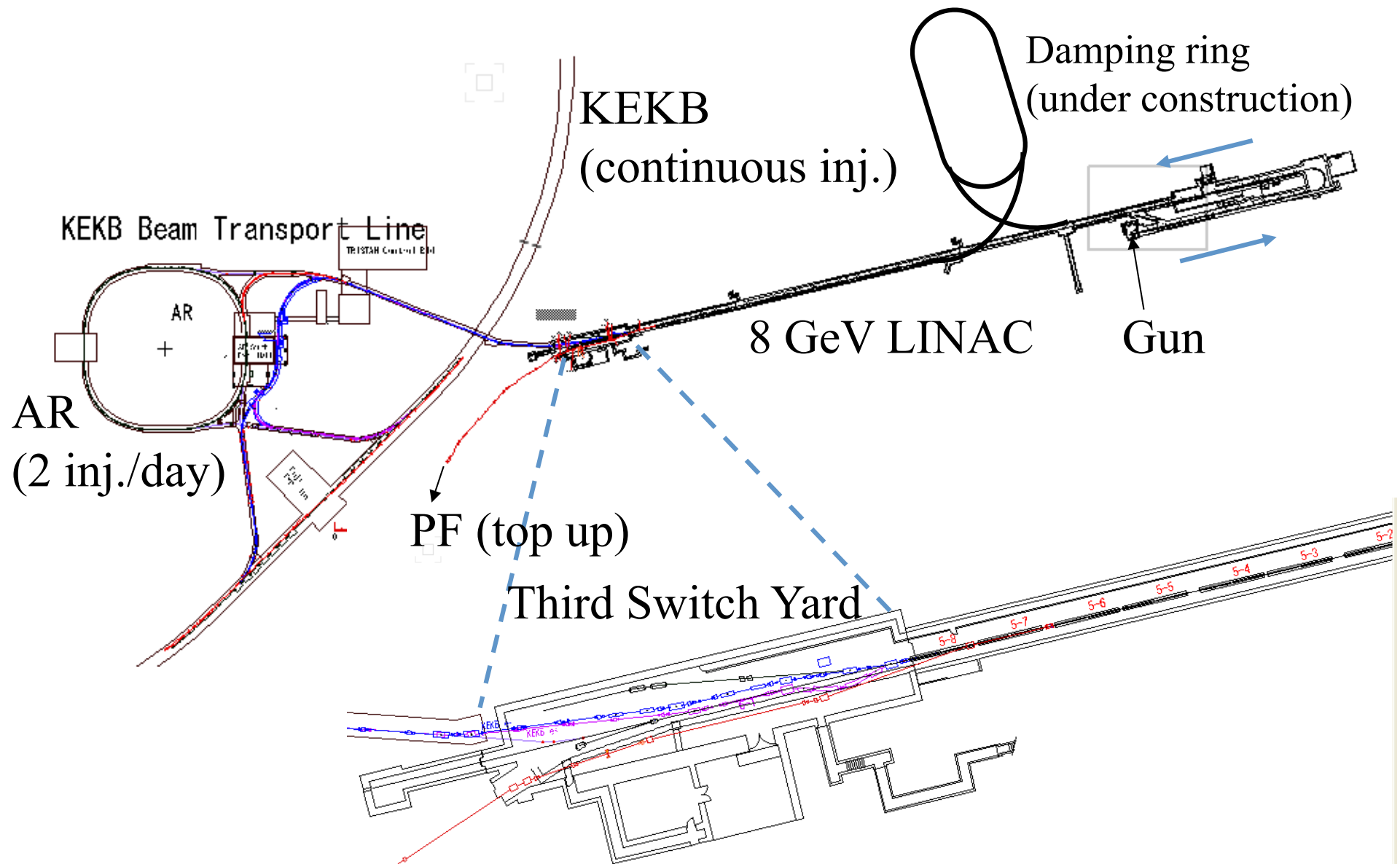
500 TW laser lab.

# 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 (O
  - 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