

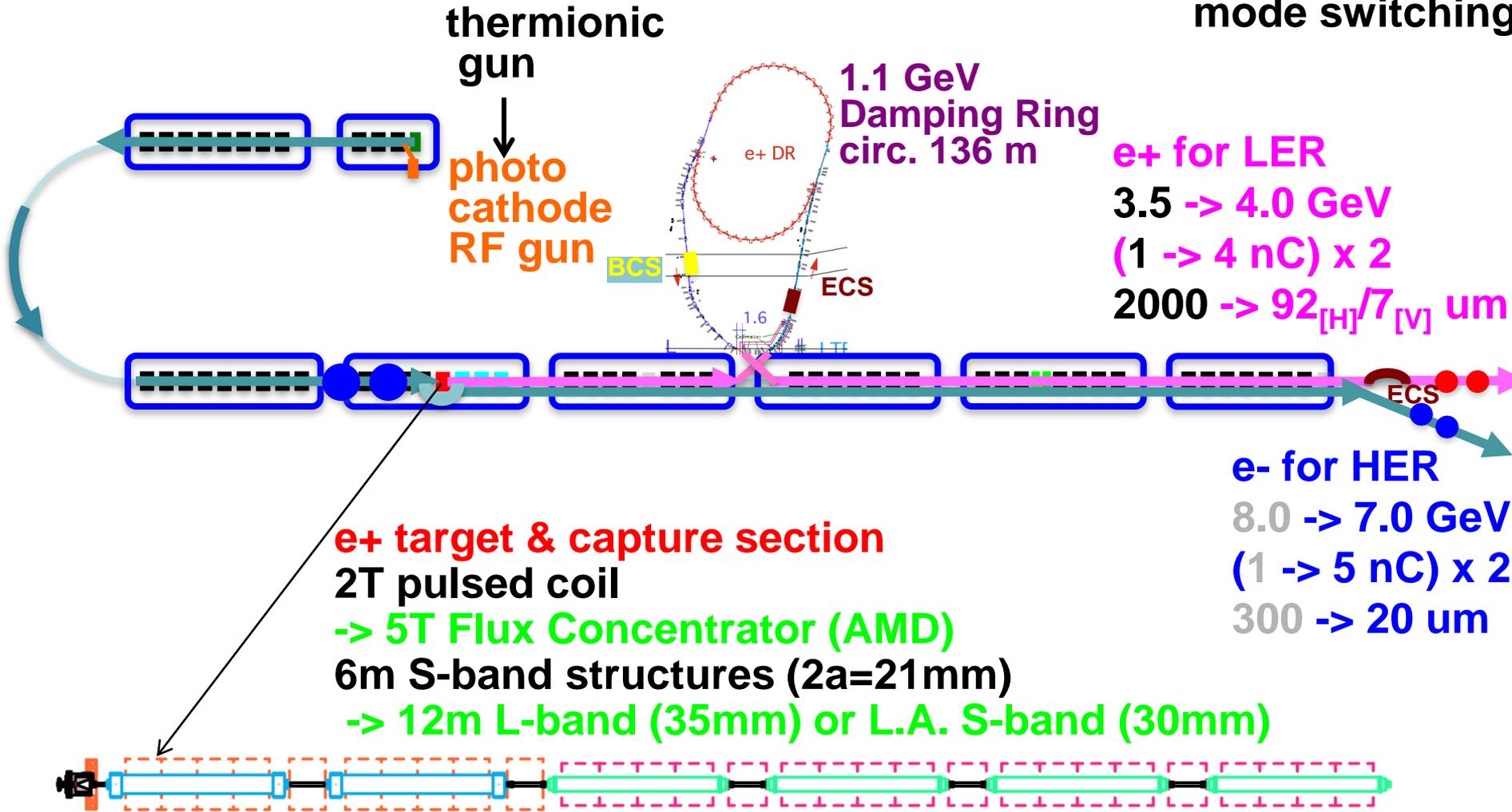
**MOPB002**

**Positron Injector Linac  
Upgrade for SuperKEKB  
(4 challenges in the upgrade)**

**Takuya Kamitani (KEK)**

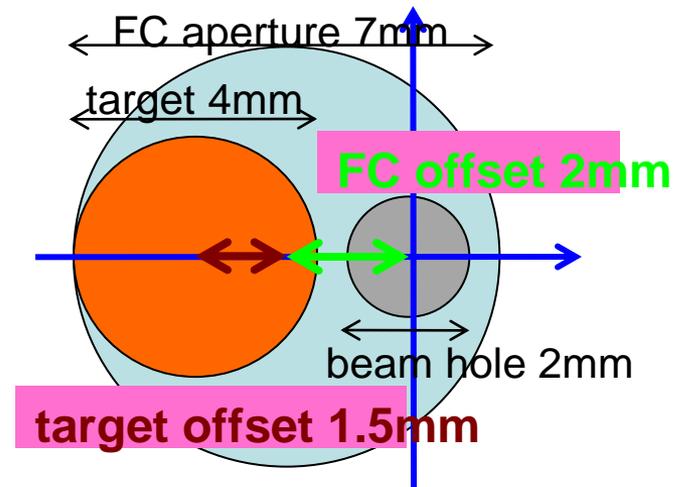
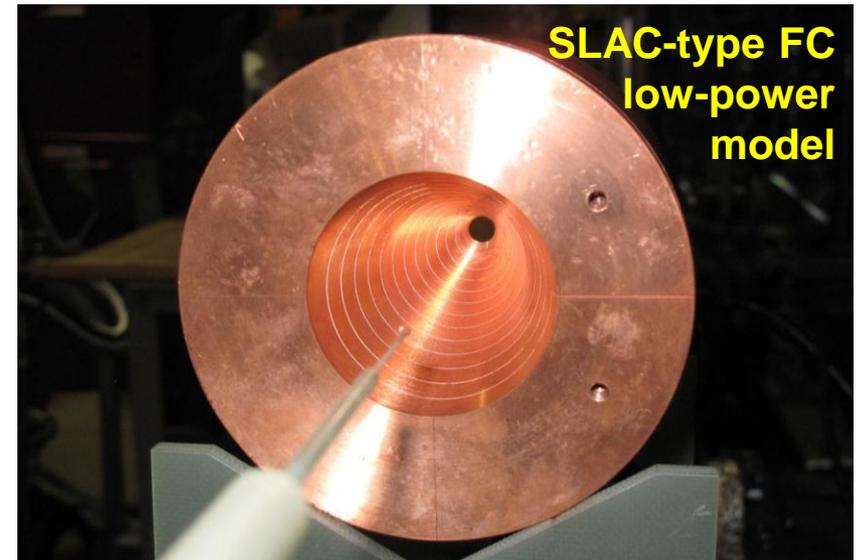
# SuperKEKB Injector & e+ source

50 Hz (e+ or e-)  
pulse-by-pulse  
mode switching



# (1) Can we develop Flux Concentrator?

- **Flux concentrator:**  
eddy current driven  
5-T pulsed solenoid
- **Spiral slit FC** or  
**Straight slit FC** ?
- **No water leaks** and  
**No breakdowns**  
in operation ?
- **FC offset** and  
Target offset OK ?  
e<sup>+</sup> yield reduced ?



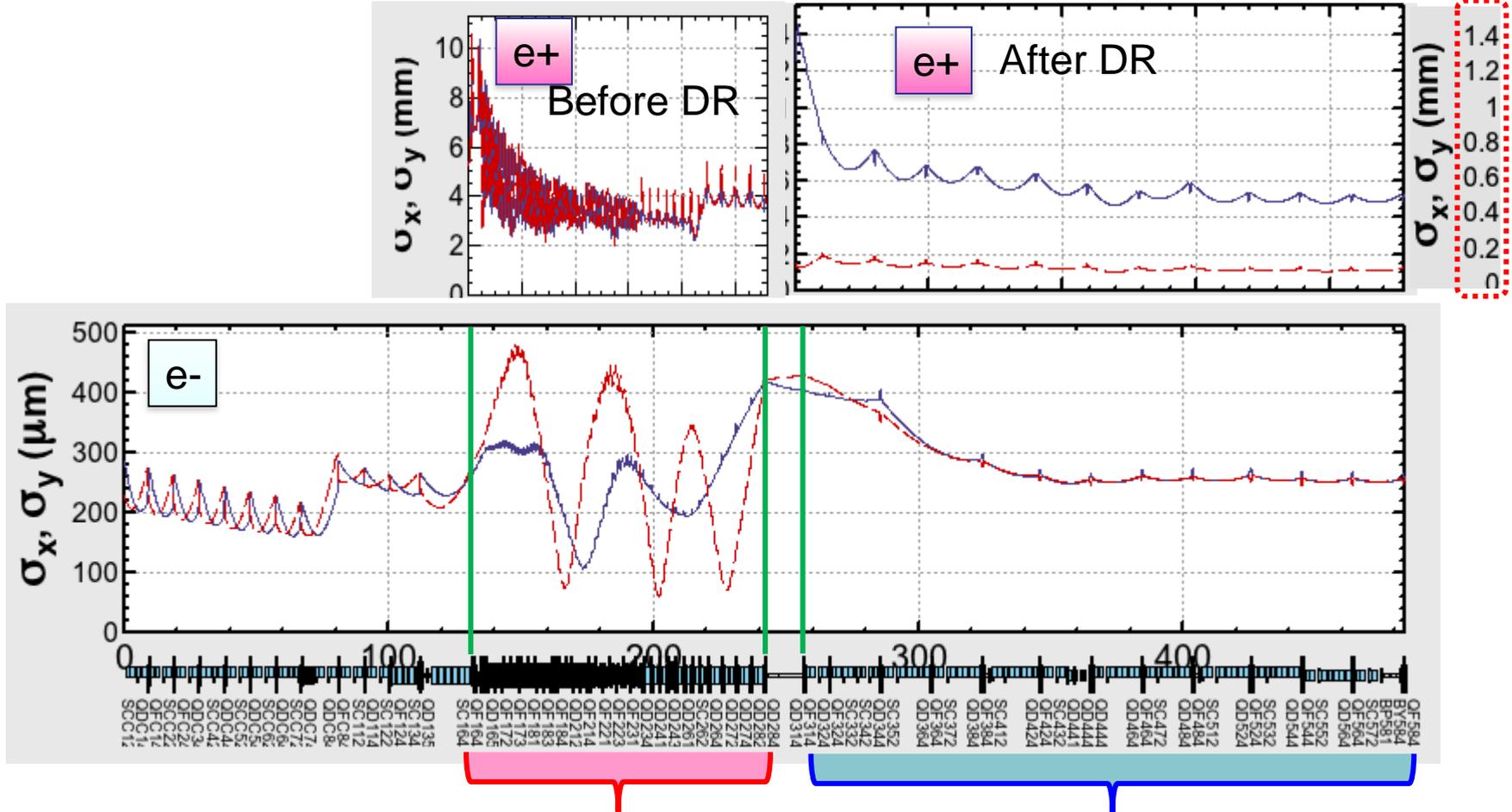
## (2) Can we eliminate satellite particles?

- **e<sup>+</sup> capture in deceleration phase**
  - > **satellite particles**
  - > **radiation** at DR injec.
- **co-prime (5/11)**  
**L-band frequency capture section**  
**effectively reduce satellite particles**
- **L-band component R&D**  
**underway, but construction cost high**



- **How to survive with S-band capture section ?**
  - **large aperture S-band**
  - **high field helps ?**
  - **deflector ?**

# (3) Can we manage $e^+ / e^-$ compatible optics?



- different energy  $e^+ / e^-$  beams in the same Q magnet field  
→ **compromised optics**

- pulse Qs can be installed in region after DR

# (4) Can we catch up with Schedule ?

