

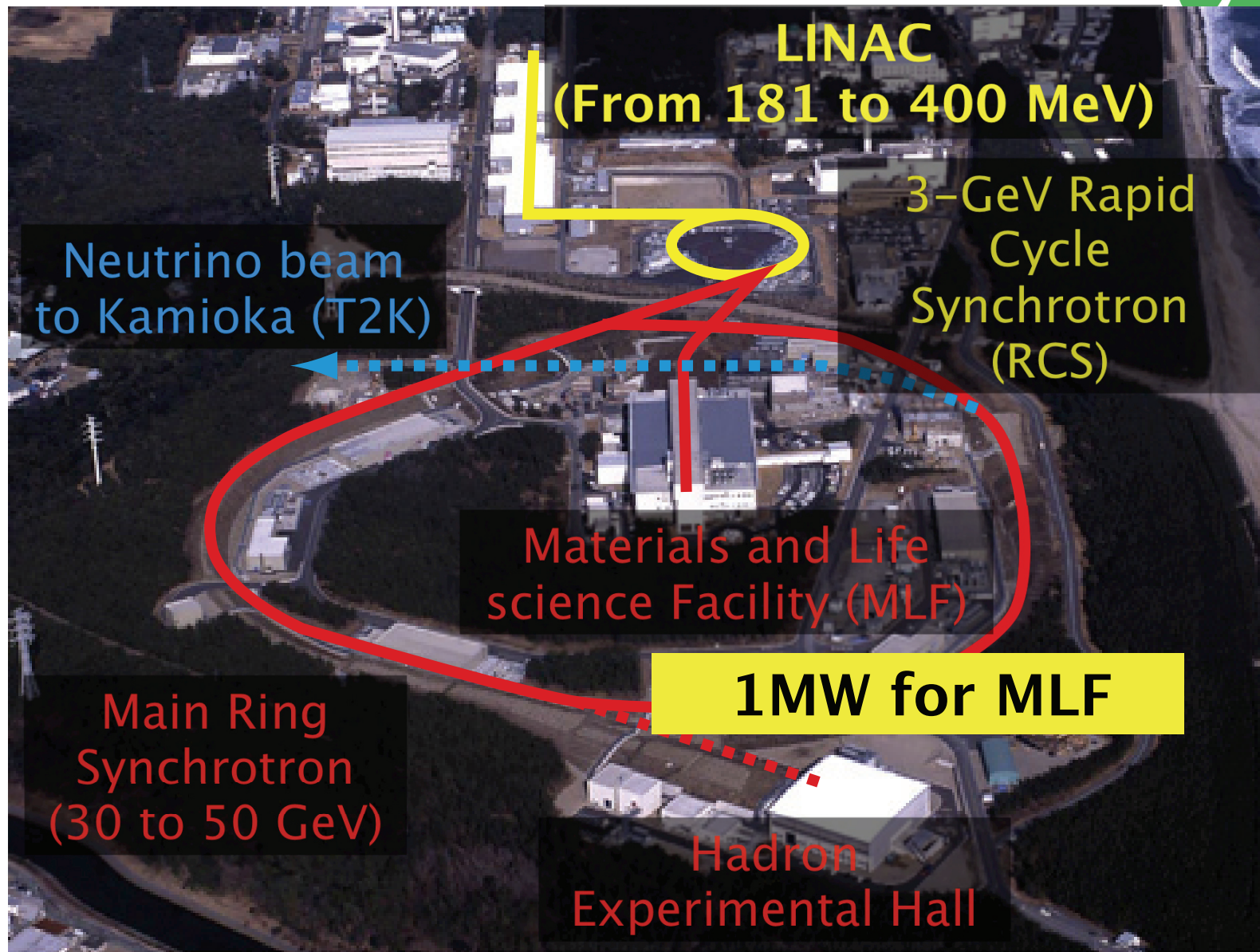
High Power Conditioning of Annular-ring Coupled Structures for the J-PARC Linac

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Overview of J-PARC

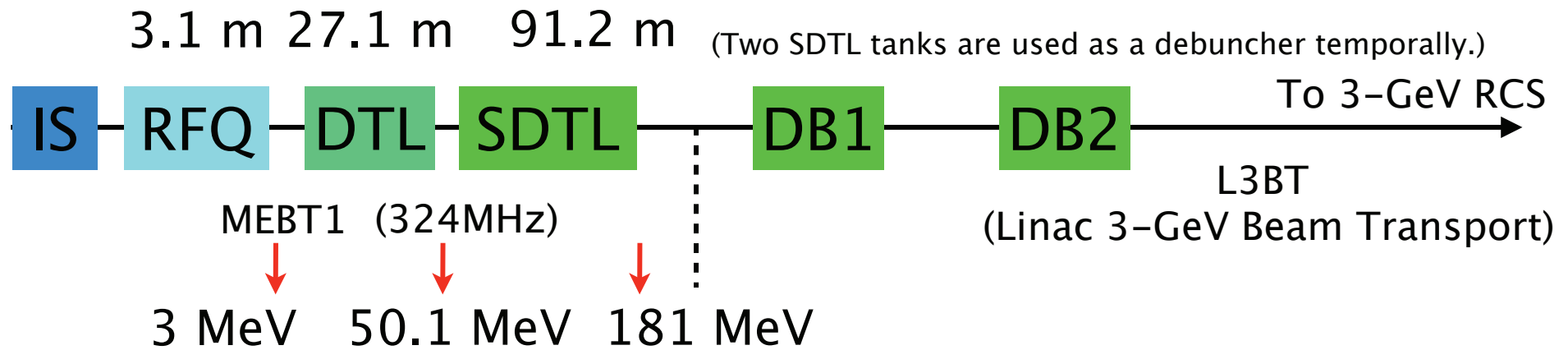


Configuration from 191 to 400 MeV



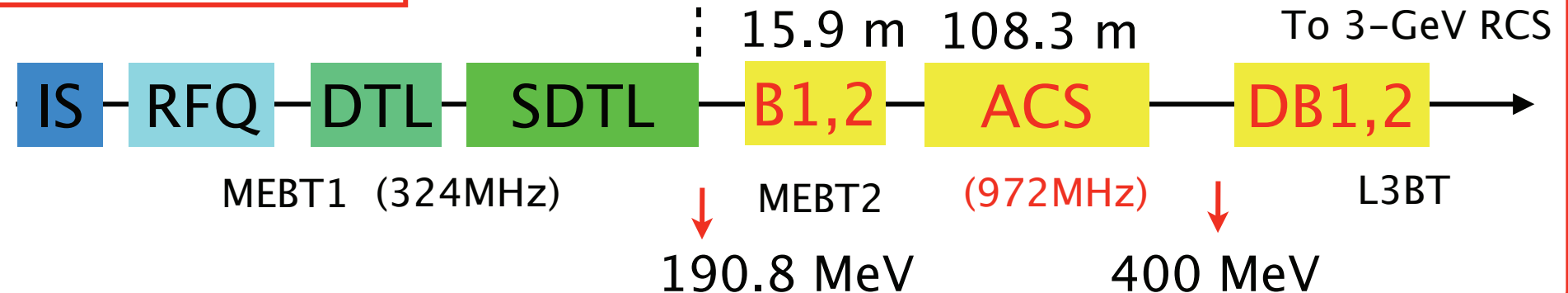
181 MeV LINAC

30 mA, 500 μ s, 25 Hz



400 MeV LINAC

25 Annular-ring coupled structure (ACS) cavities

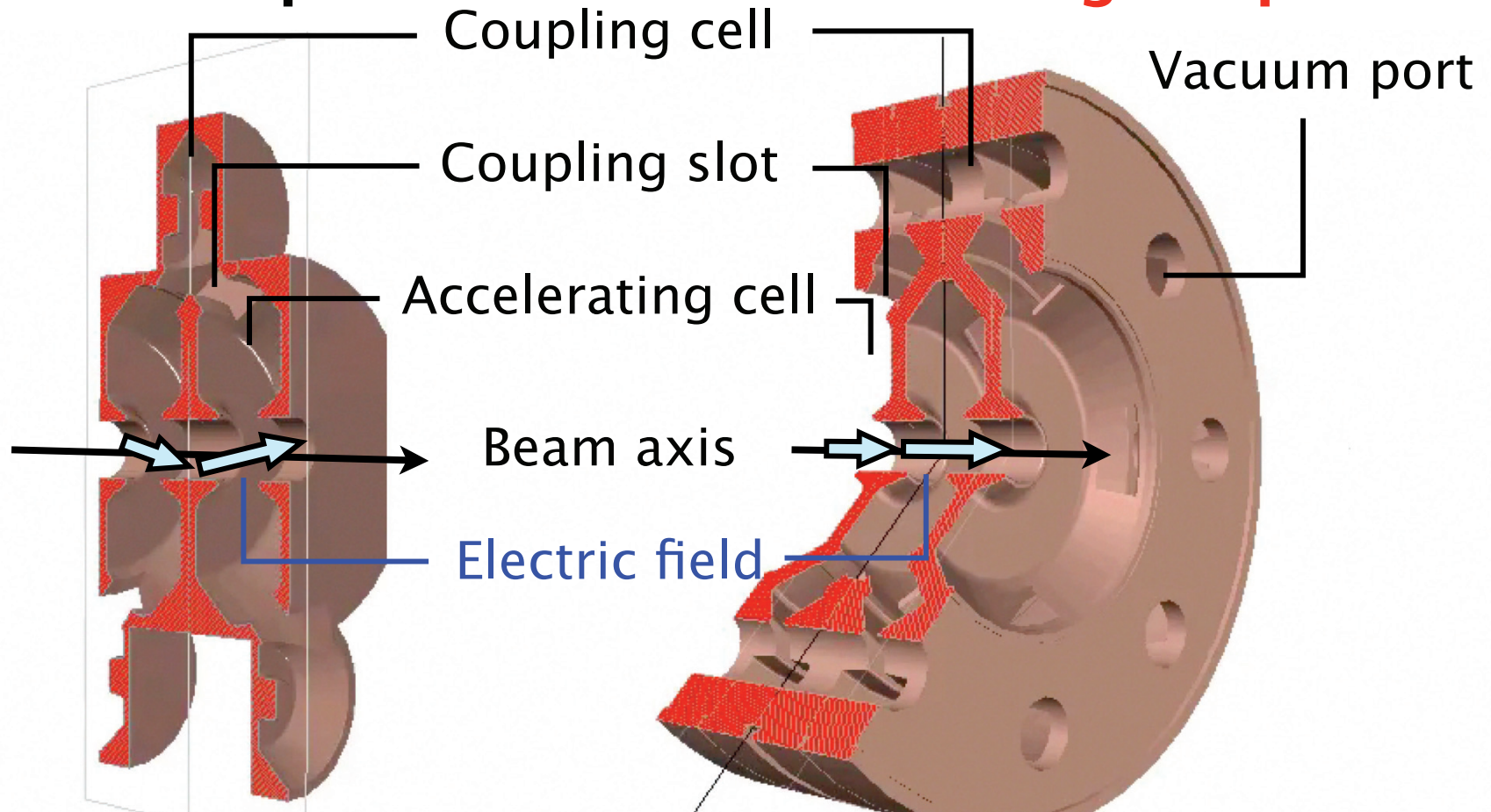


SCS vs. ACS (3D model)



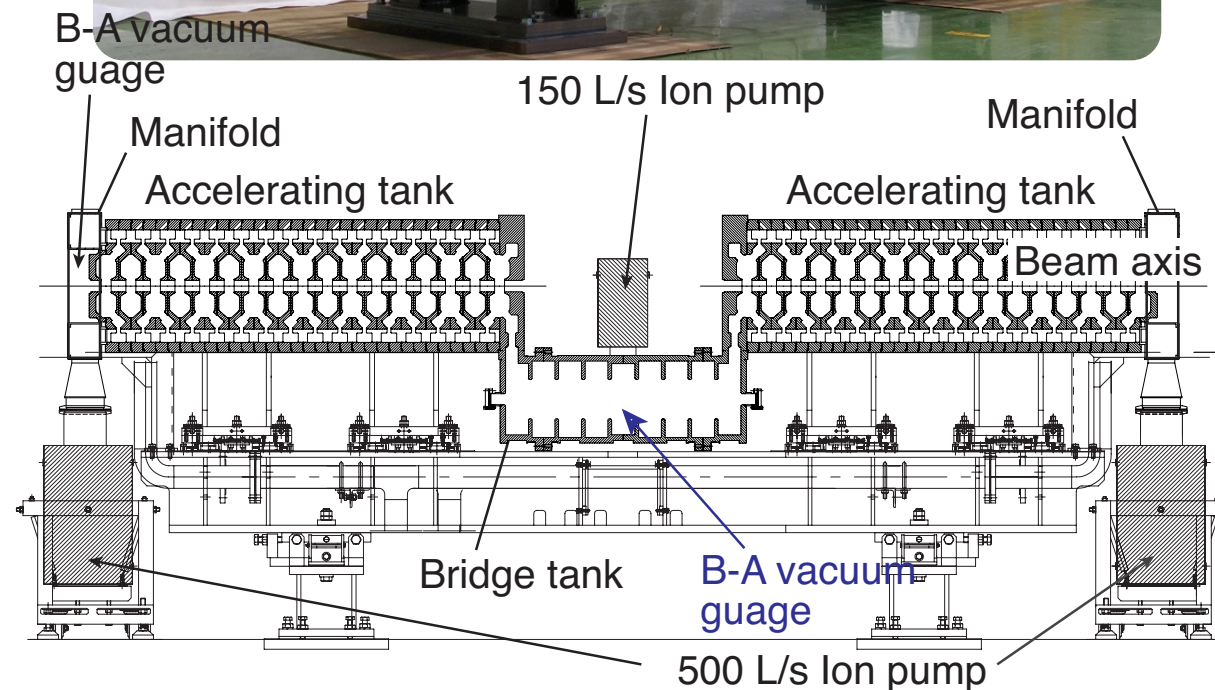
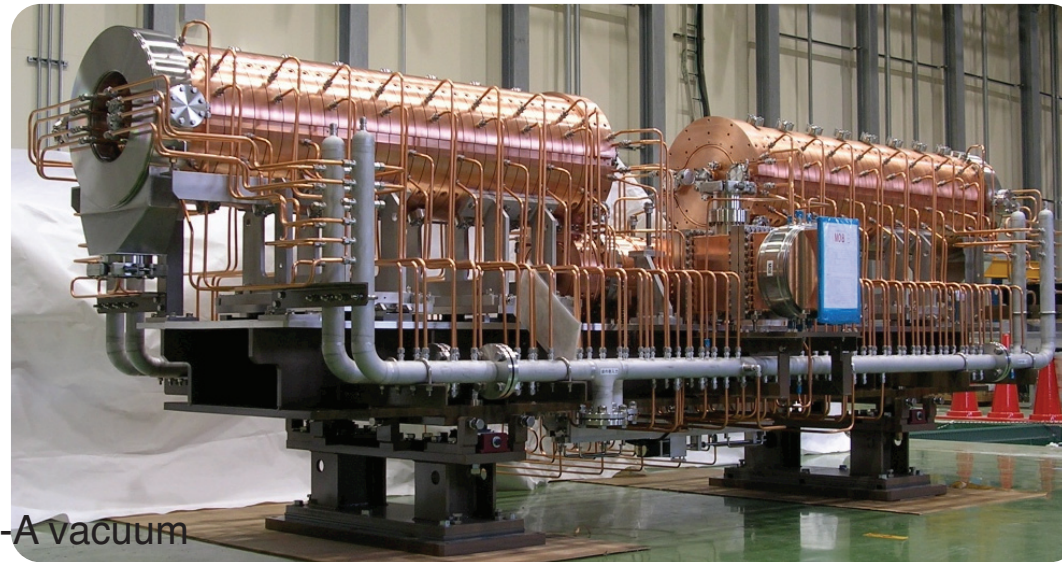
Side coupled

Annular-ring coupled

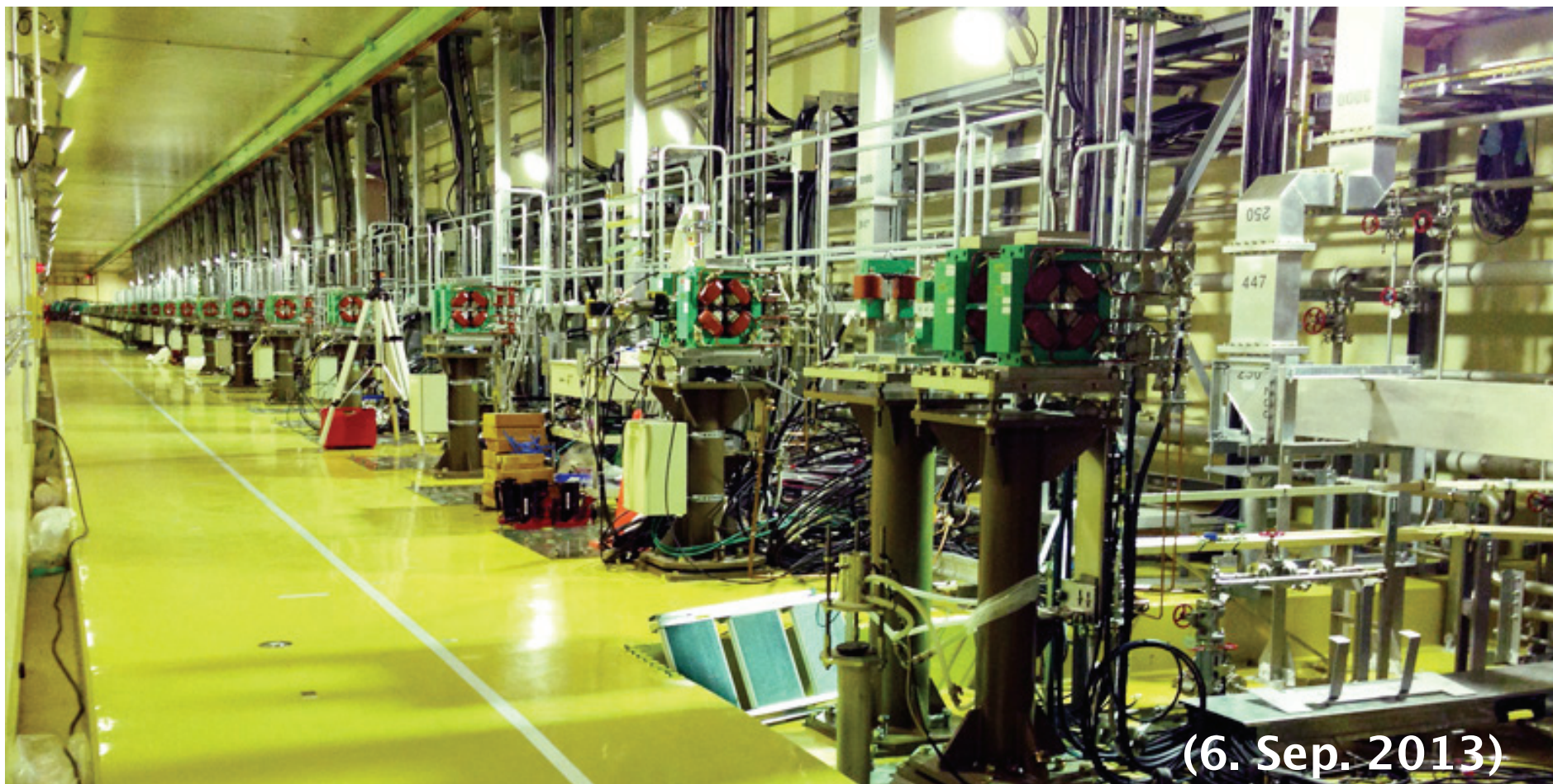


- Negligibly small transverse kick field,
- Possibility of precise machining by a lathe,
- Mechanical stability.

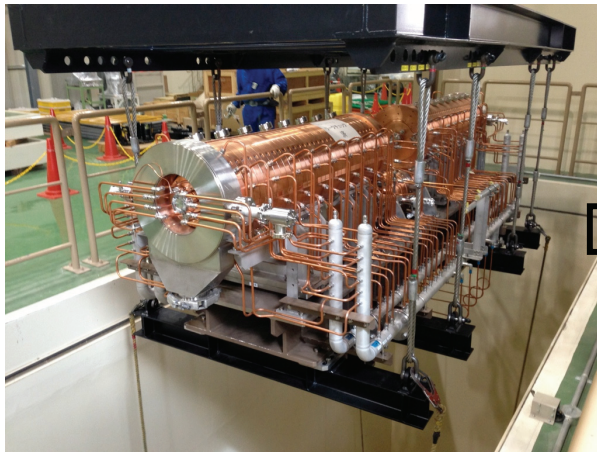
ACS accelerating module



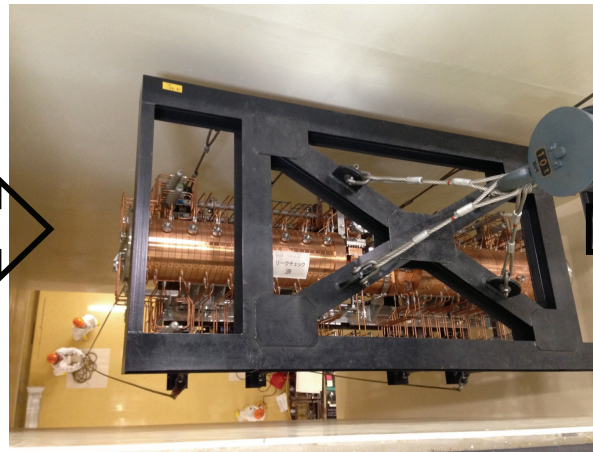
Before cavity installation



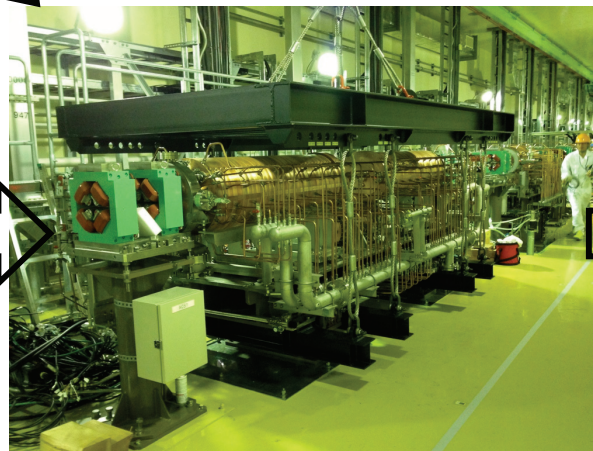
Moving ACS cavity to acc. tunnel



Ground level to acc. tunnel



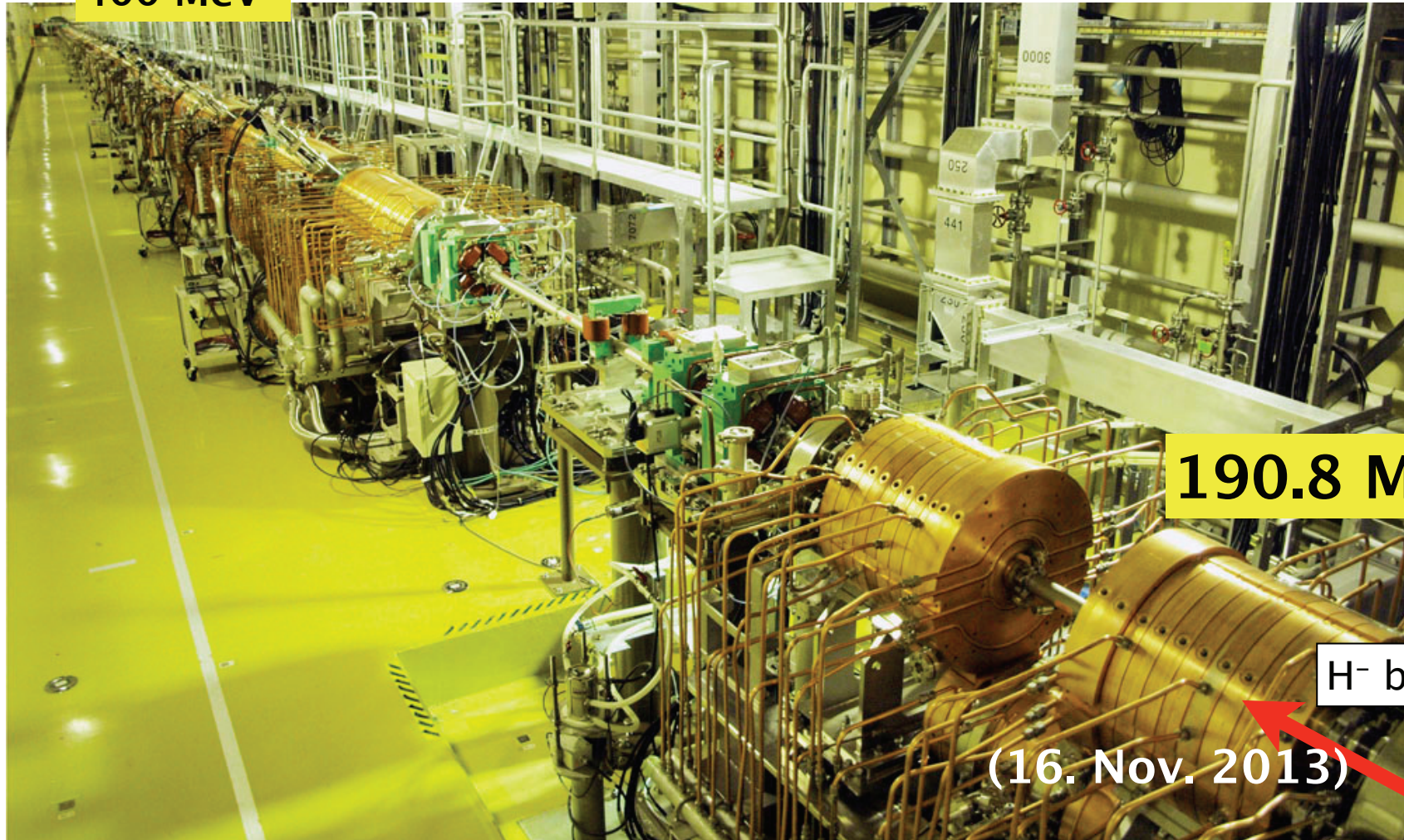
Using moving rollers
(motor-driven)



After cavity installation



400 MeV



190.8 MeV

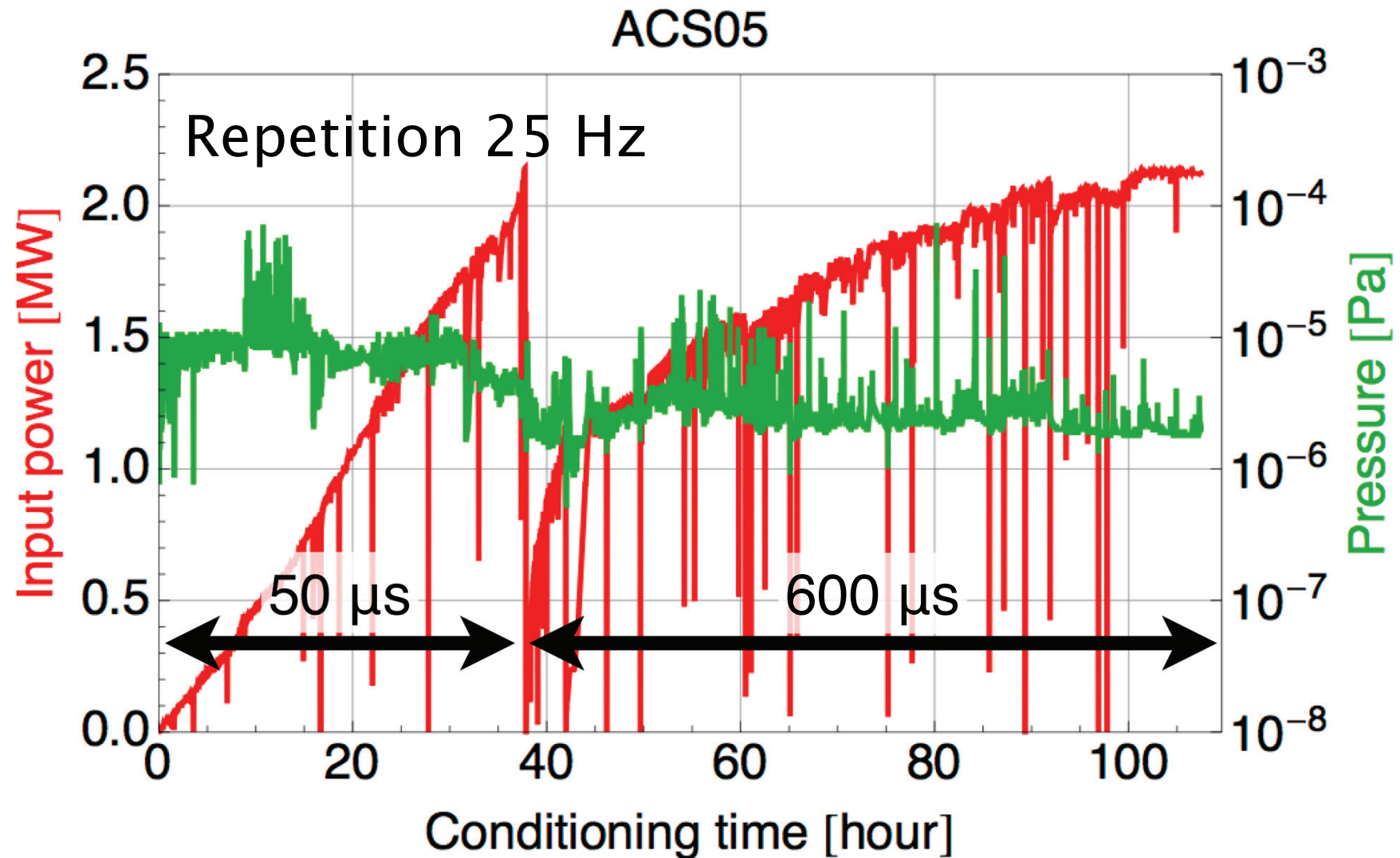
H⁻ beam

(16. Nov. 2013)

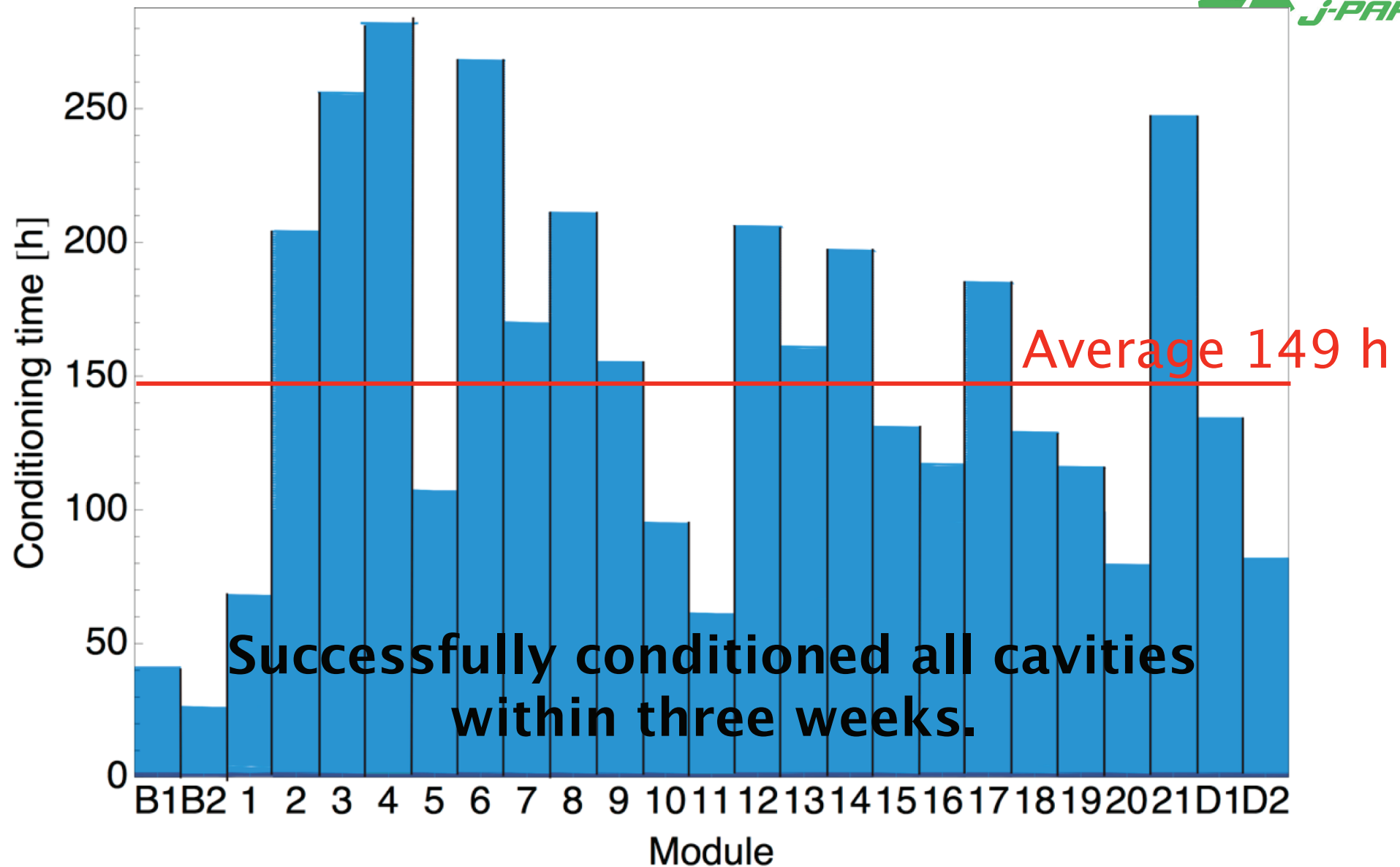
Typical conditioning history



- ACS05 (First conditioning)



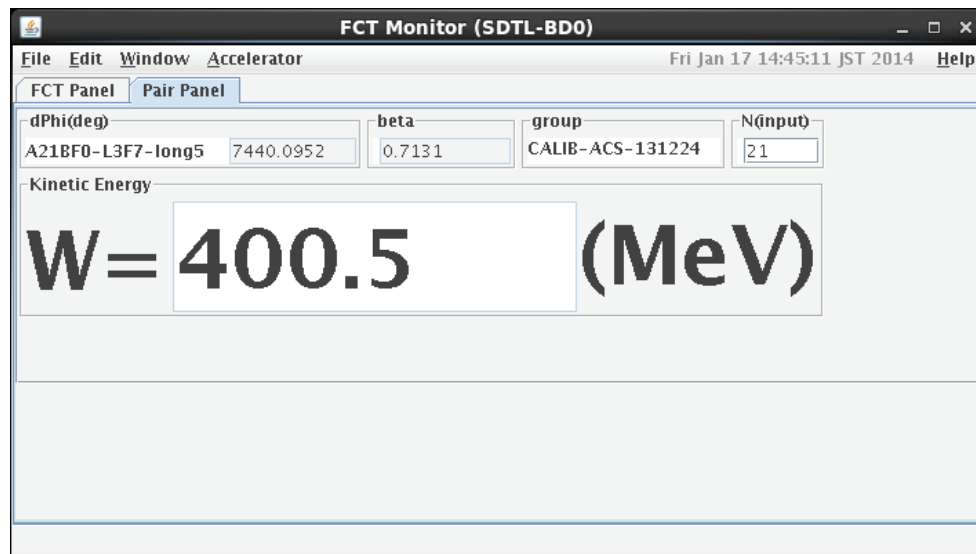
Required conditioning time



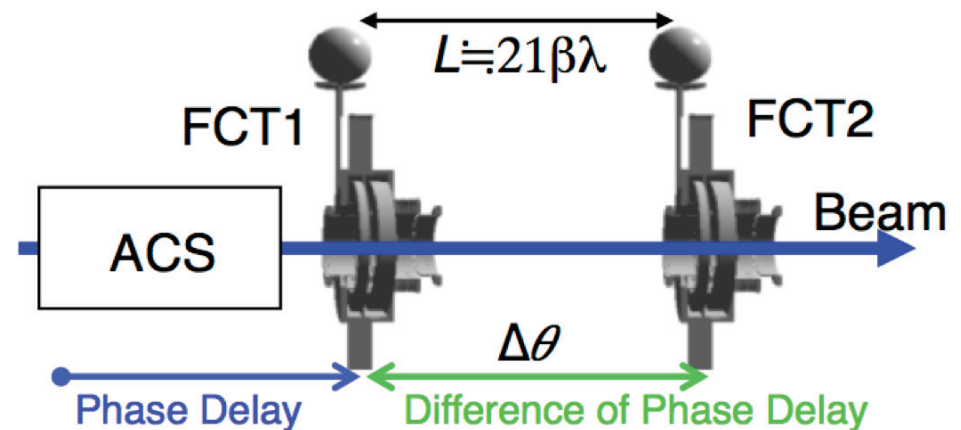
400 MeV acceleration



The J-PARC linac successfully achieved 400 MeV as of 14:34 Jan. 17.



Time of flight



(by linac commissioning group)

Please visit THPP089 for details.
Thank you for your attention.