

Recent SRF Activity in KEK



Measured/Fabricating Cavities in STF

- MHI-01~04 Phase-1 (already done)
- MHI-05~09 S1-Global (already done, except for MHI-08)
- MHI-10, 11 S0 plan (already done)
- MHI-12, 13 Quantum Beam (already done, Capture Cryomodule)
- MHI-14~22 Phase-2 (for CM-1)
- MHI-A New fabrication method MHI-Kobe
- **MHI-B, C** **New fabrication method**
- **MHI-23~26** **Under fabrication, Phase-2 (for CM-2a)**
- MHI-27~30 In Plan MHI-Mihara
- **HIT-01, 02** New vendor
- TOS-01, 02 New vendor
- **KEK-00, 01** In house (Under fabrication)
- AES-001 International Collaboration
- IHEP-01 International Collaboration
- **PKU-04** **International Collaboration**



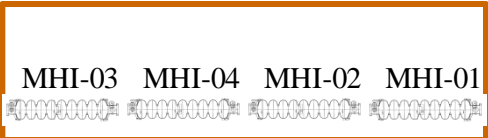
Cryomodule History in STF

Phase-0.5 (2007)



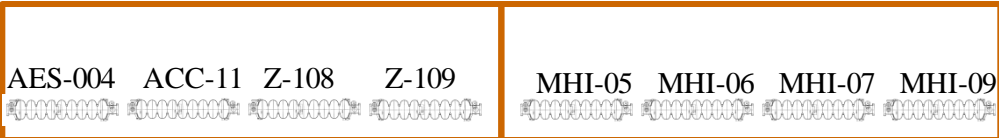
CM test for 1 cavity

Phase-1 (2008)



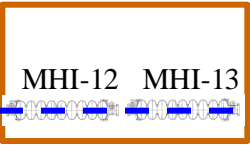
CM test for 4 cavities

S1-Global (2010)



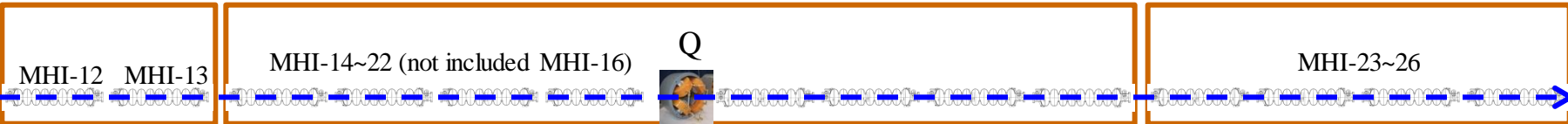
CM test for 8 cavities

Quantum Beam (2012)



Beam operation for 2 cavities (Capture Cryomodule)

Phase-2 (2014~)

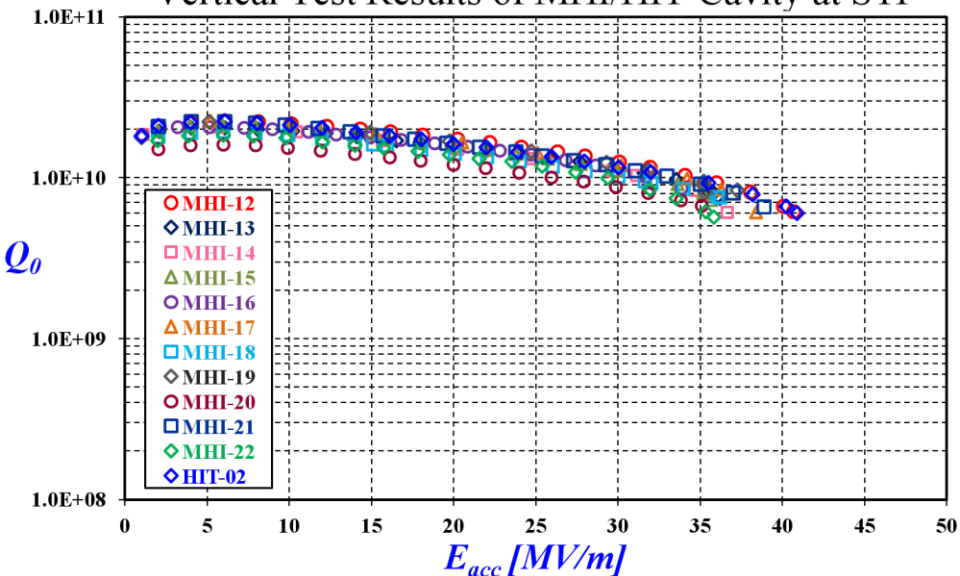


Beam operation for 14 cavities

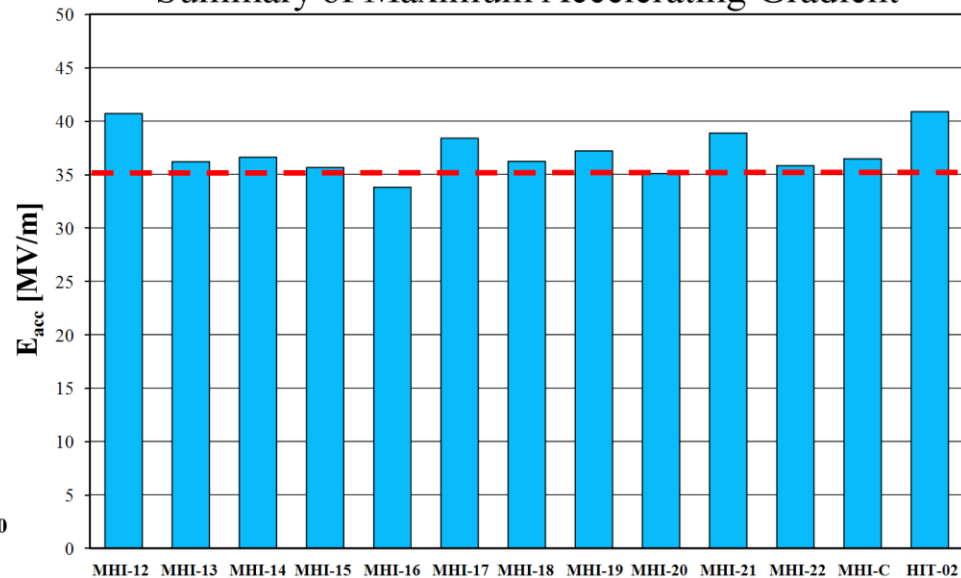


Recent Results of V.T.

Vertical Test Results of MHI/HIT Cavity at STF



Summary of Maximum Accelerating Gradient



- ◆ Eight cavities for STF-2 reached above 35 MV/m.
- ◆ HIT-02 reached around 41 MV/m.
- ◆ MHI-C reached around 36 MV/m.



Ongoing Cavities

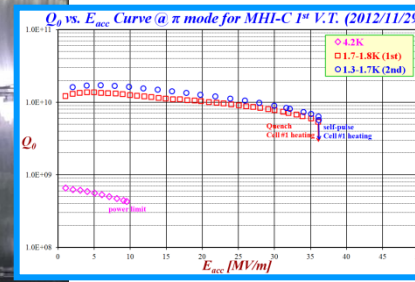
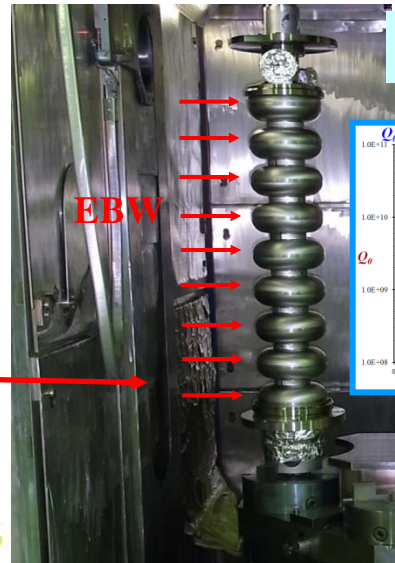
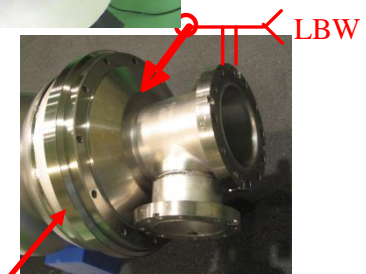
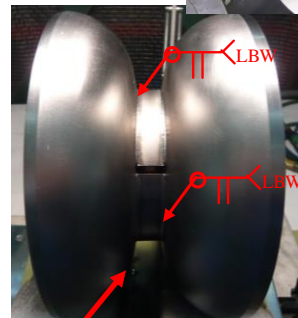
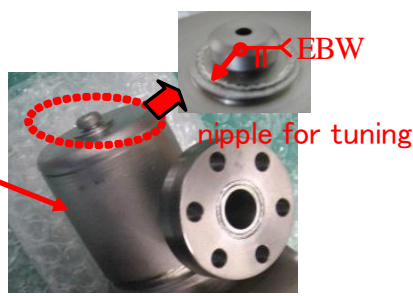
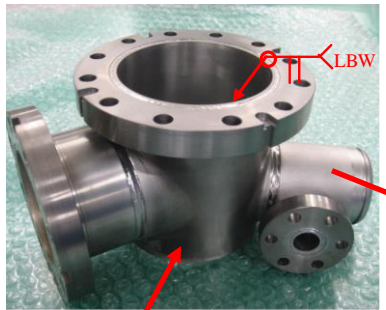
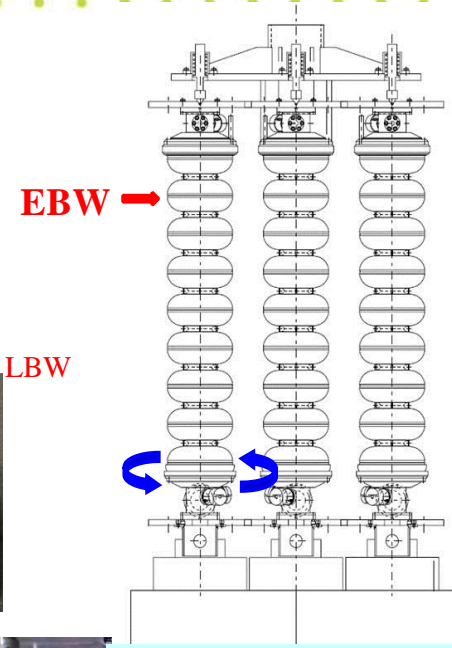
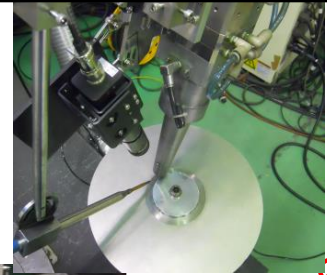
- MHI-C Go to 3rd V.T. after local grinding
- MHI-23~26 Will be completed on May
- HIT-02 Just finished 6th V.T. for R&D
- KEK-01 Will be completed by summer
- PKU-04 1st V.T. done on February
20 μ m EP (this week) / 2nd V.T. (next week)



For study of the mass production

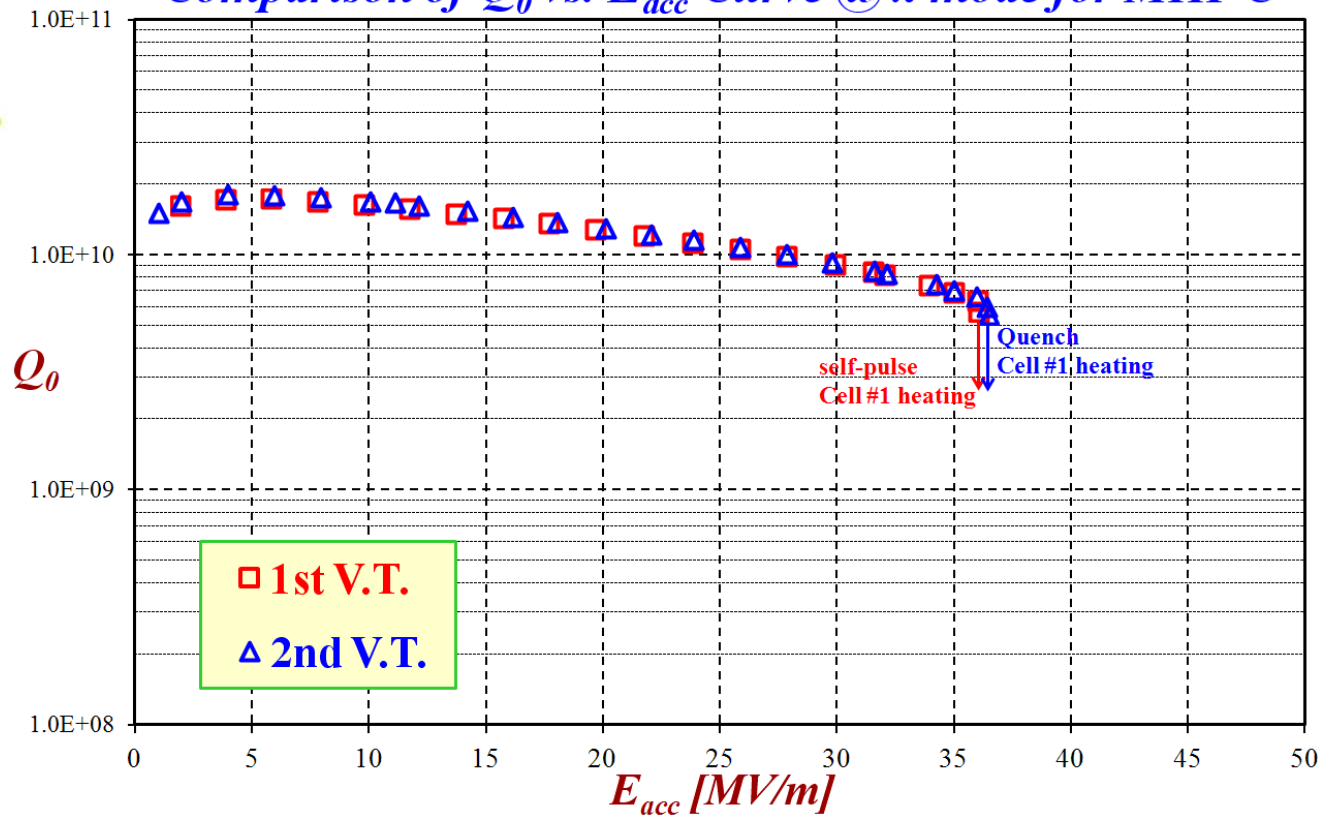
- Use of laser welding
- Multi-dumbbell welding
- Multi-cavity welding
- Lower cost

KEK-MHI Collaboration

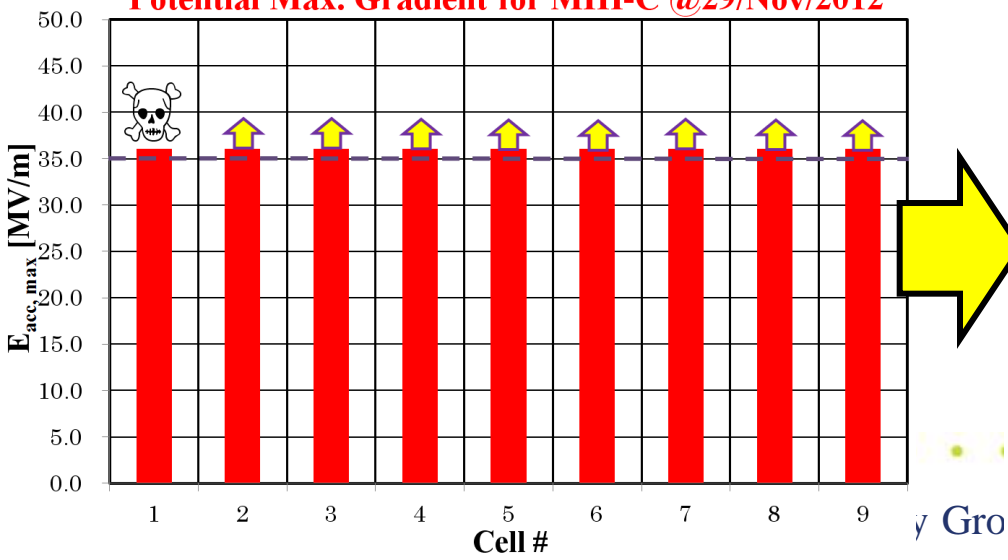


36MV/m !

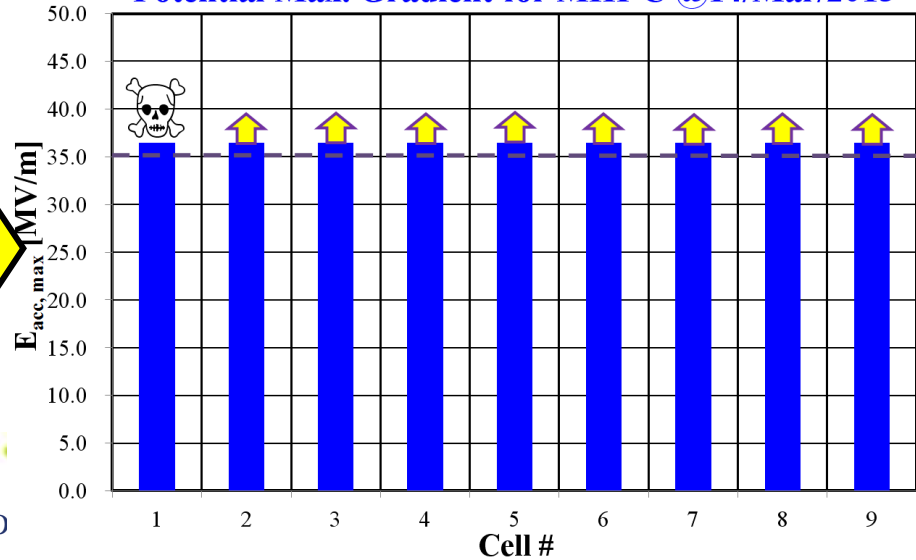
Comparison of Q_0 vs. E_{acc} Curve @ π mode for MHI-C



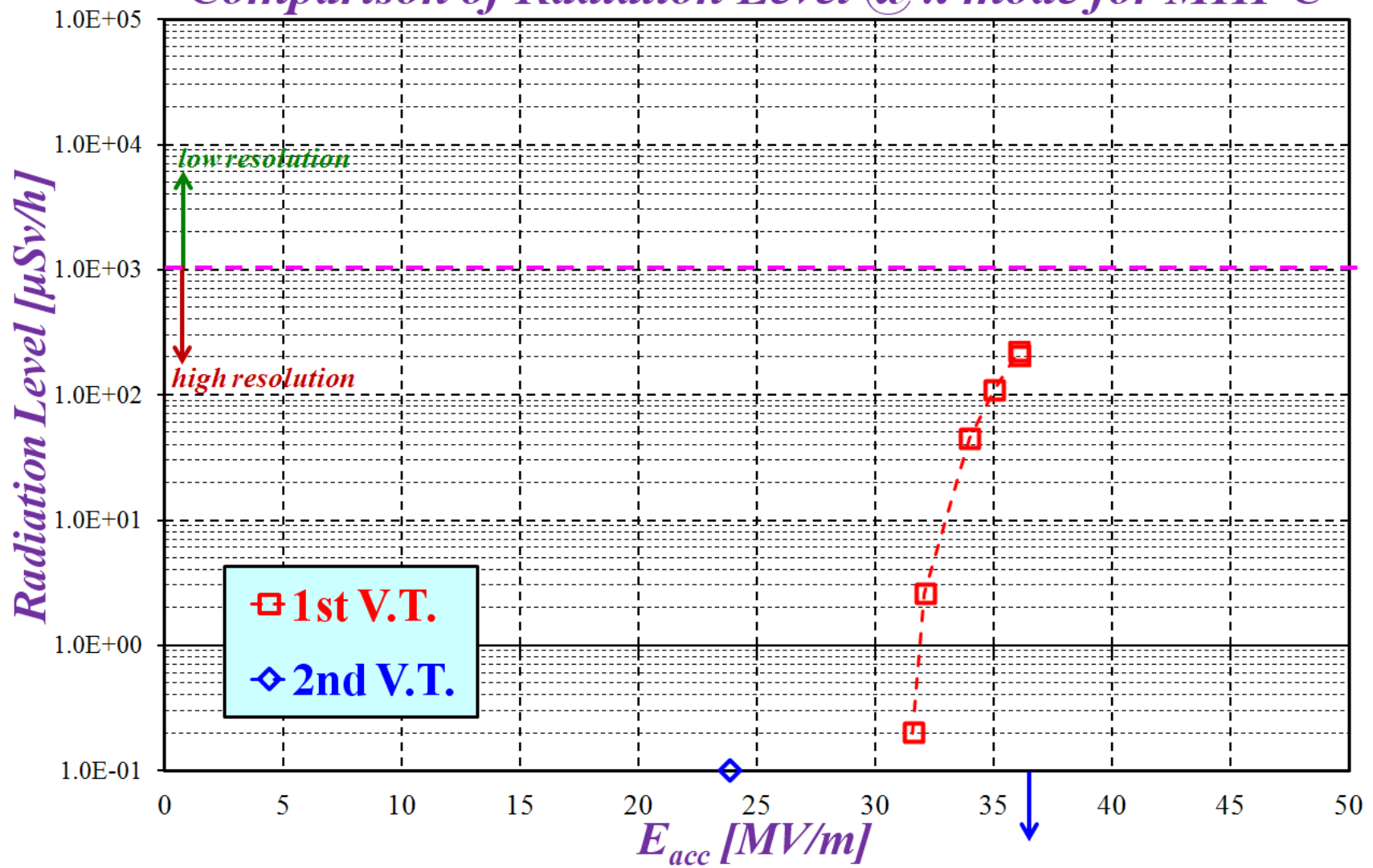
Potential Max. Gradient for MHI-C @29/Nov/2012



Potential Max. Gradient for MHI-C @14/Mar/2013

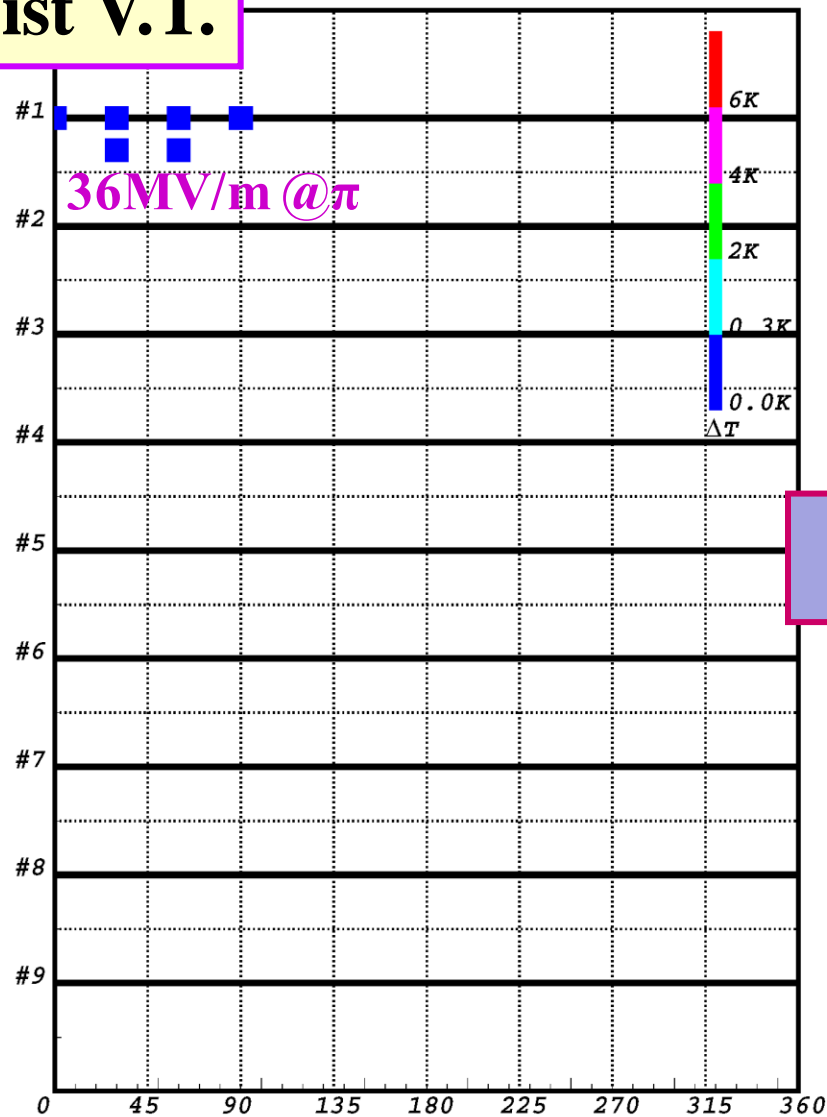


Comparison of Radiation Level @ π mode for MHI-C

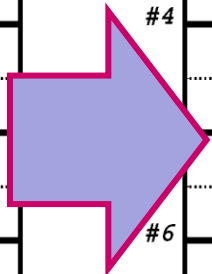
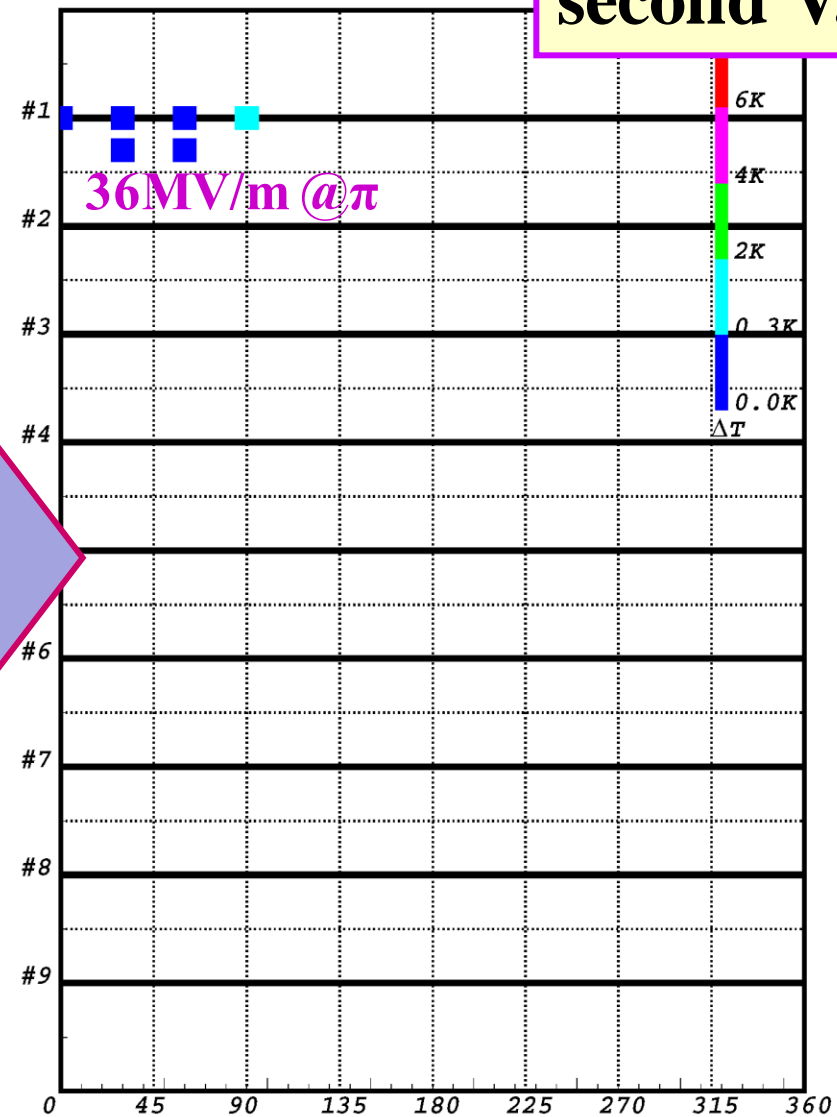


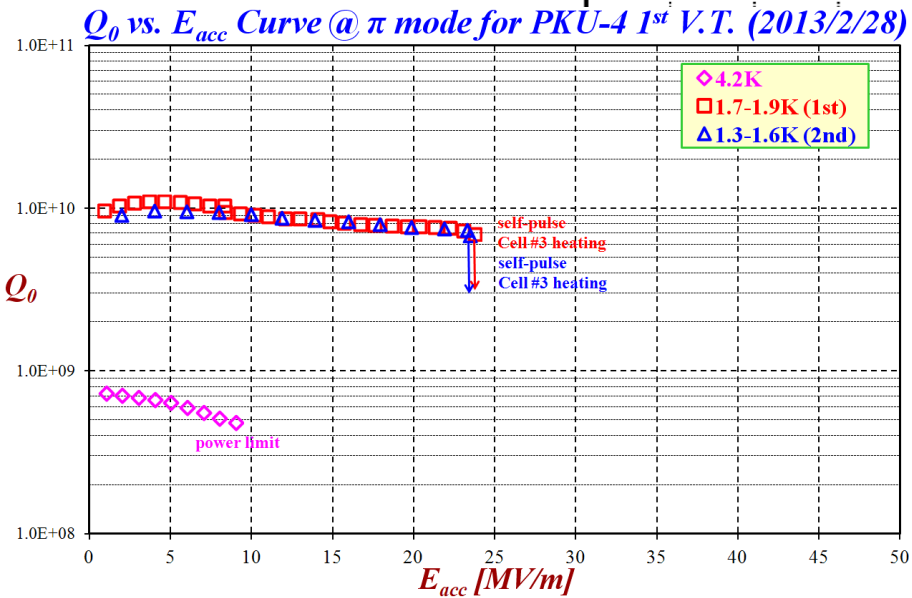
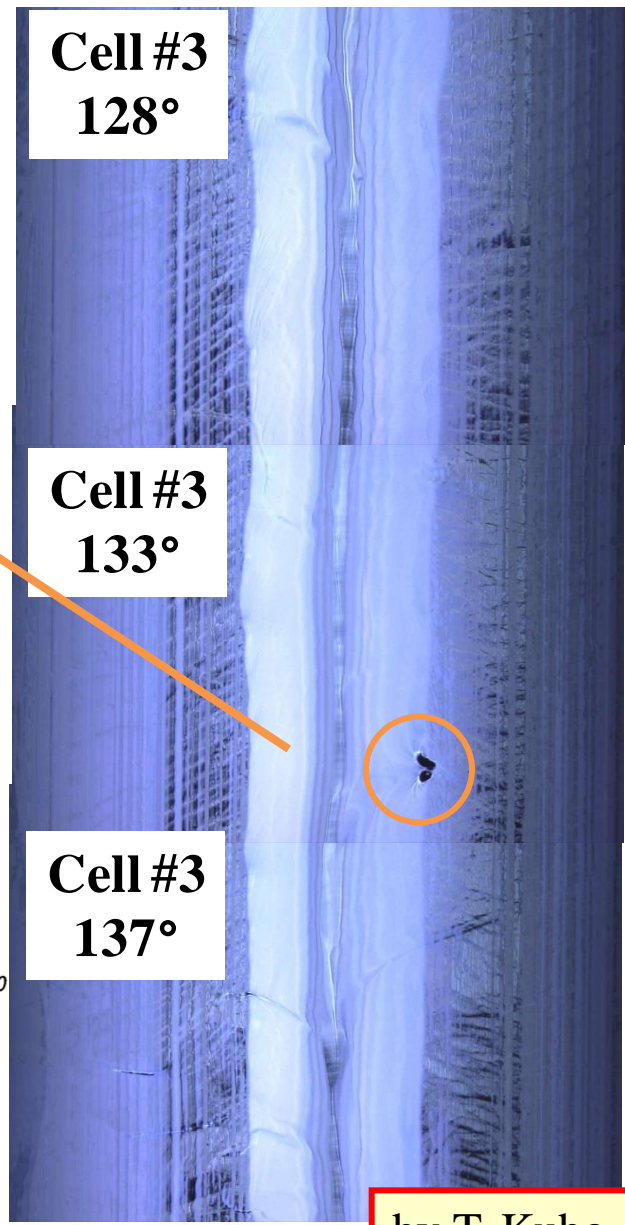
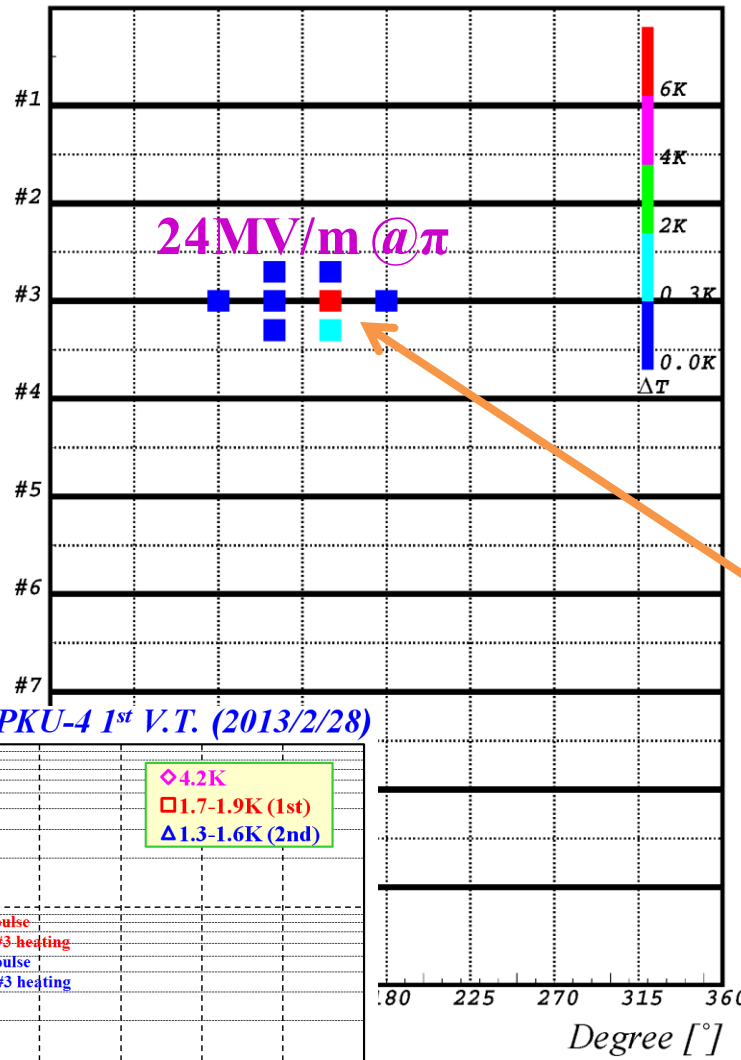
Comparison of T-mapping @ π mode

first V.T.



second V.T.

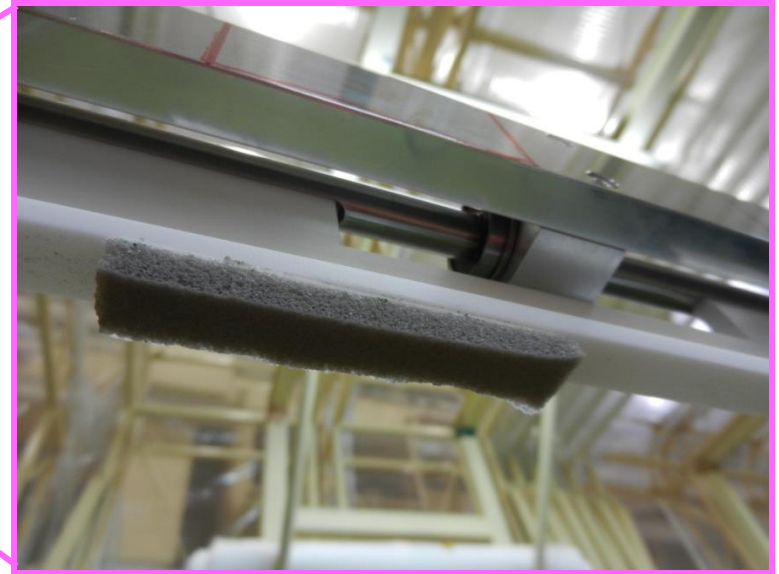
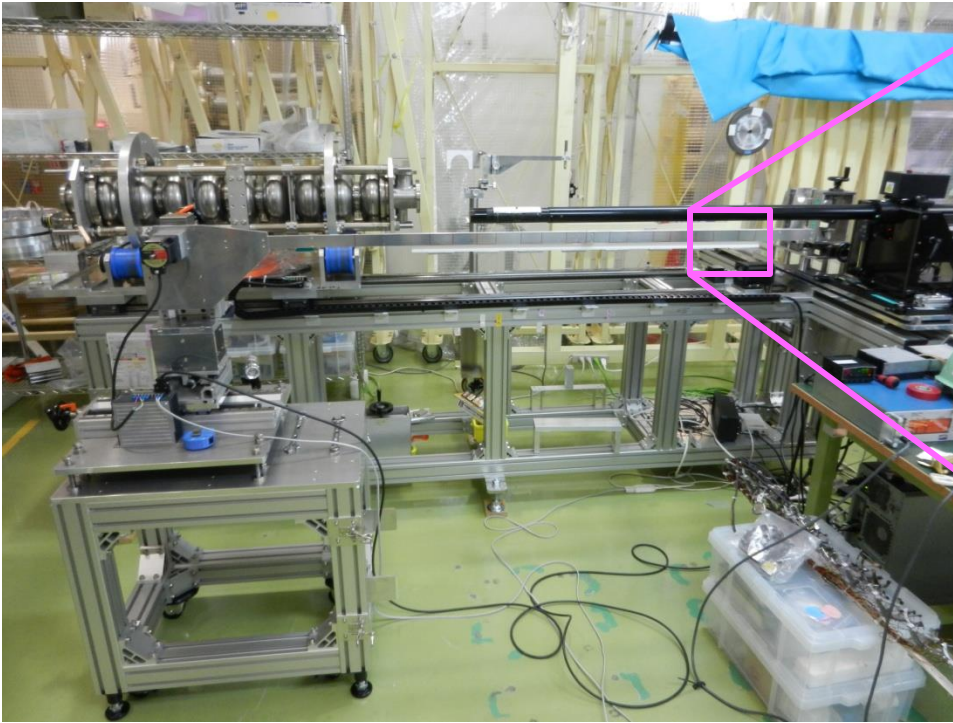




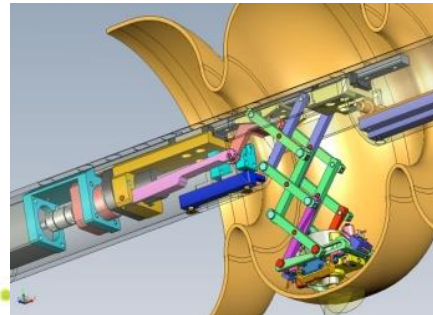
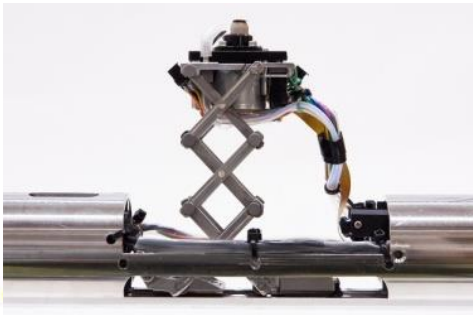
by T. Kubo



Automatic machine for Iris grinding



Recently, we are developing the new grinding machine for every iris region.





Other Activities

- Input coupler conditioning for STF-2 (eight couplers)
- Input coupler (made by IHEP) conditioning (already done)
- Vertical EP R&D with a company (Hayano-san knows)
- Disassembly of the beamline for the Quantum Beam Project
- Preparing for 2nd Multi-Beam Klystron



Thank you for your attention