

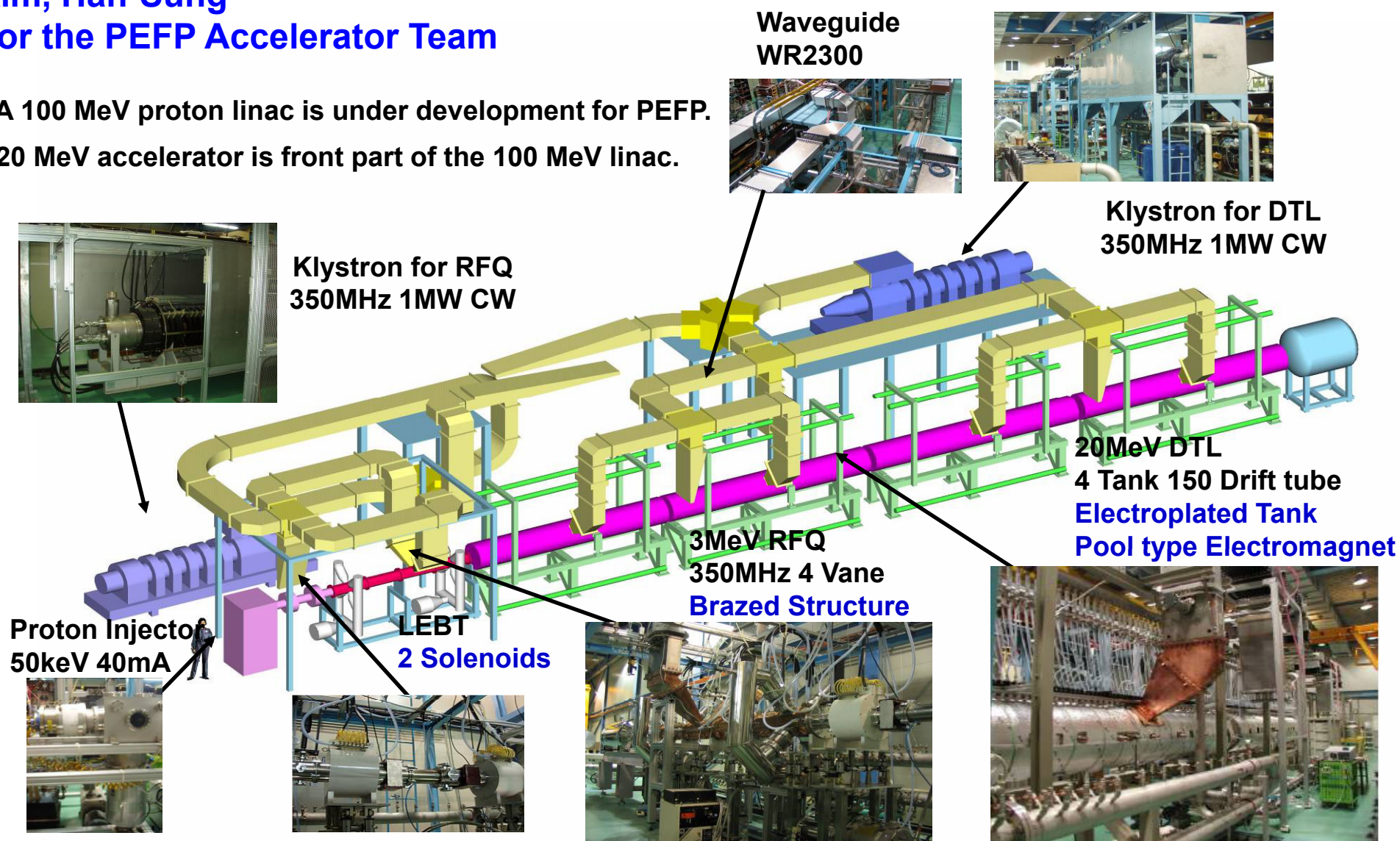
Beam Test Results of the PEFP 20 MeV Proton Accelerator at KAERI

MOP005

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For the PEFP Accelerator Team

- A 100 MeV proton linac is under development for PEFP.
- 20 MeV accelerator is front part of the 100 MeV linac.

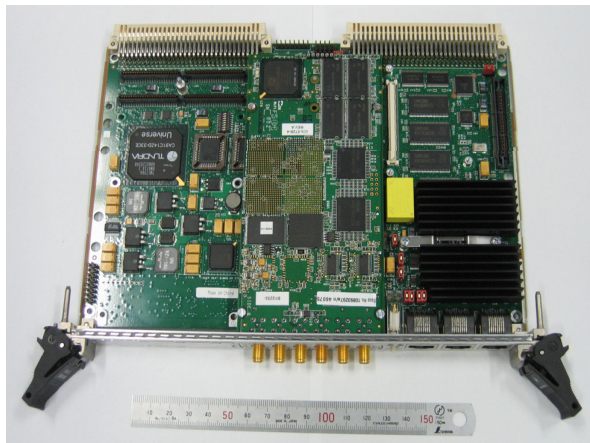
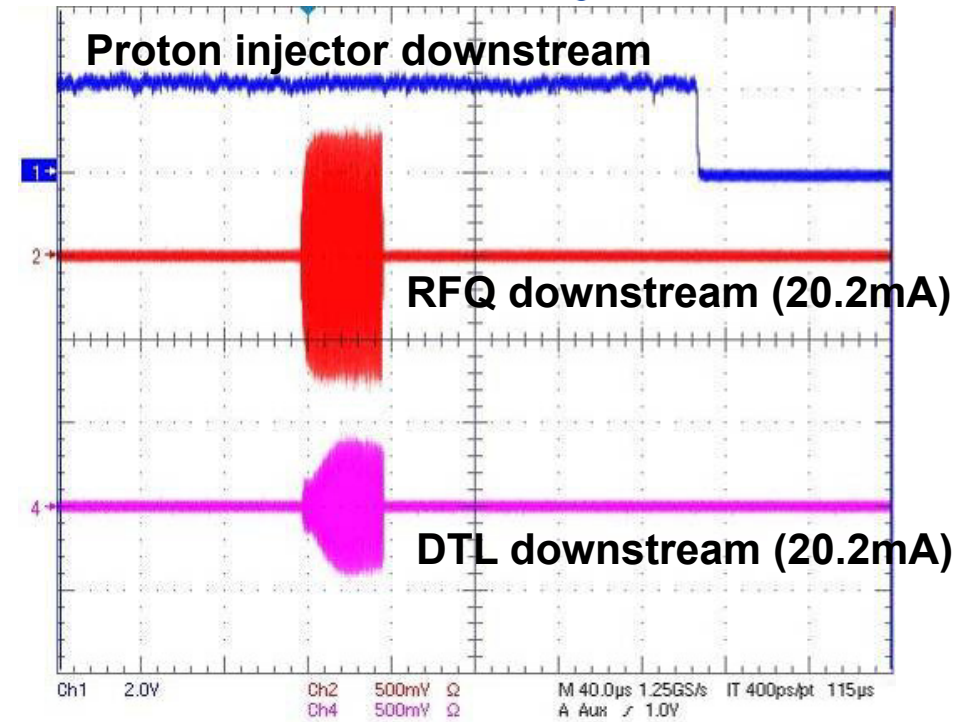
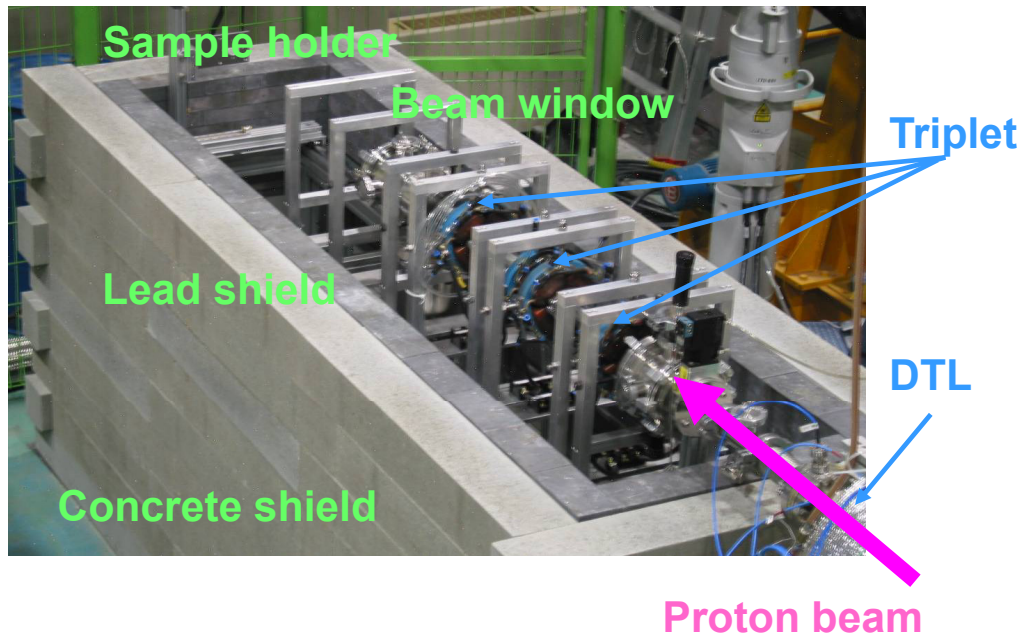


Comparison of DTL for 20MeV Range

- PEFP 20 MeV DTL has different design parameters compared with other DTL.
 - High duty, low peak current operation is required for proton beam irradiation and ADS.
 - To operate DTL with high duty, low driving RF power & low power dissipation are necessary.

	Freq. (MHz)	E in / E out (MeV)	L (m)	No. of Tanks	No. Klystron / Peak RF Power (MW)	Peak Cu RF Power (MW)	Duty (%)
SNS	402.5	2.5 / 22.8	10.21	2	2 / 2.5	1.11	6%
J-PARC	324	3.0 / 19.7	9.9	1	1 / 2.5	1.06	1.4%
CSNS	324	3.0 / 21.76	7.99	1	1 / 2.5	1.41	1%
PEFP	350	3.0 / 20.0	18.61	4	1 / 1.1	0.556	24%

Beam Experiment Results



THP111 for LLRF system

- Beam energy / current : 20-MeV, 1uA (average) – 20mA peak, 50us, 1Hz
- External beam diameter : 10cm (1m transport after beam window)
- License issued at 23th May, 2008 (for limited duty, up to average 1uA)
- 20MeV accelerator will be moved to Gyeongju site in 2011.
- Full duty experiment will be performed at new site.

THANK YOU