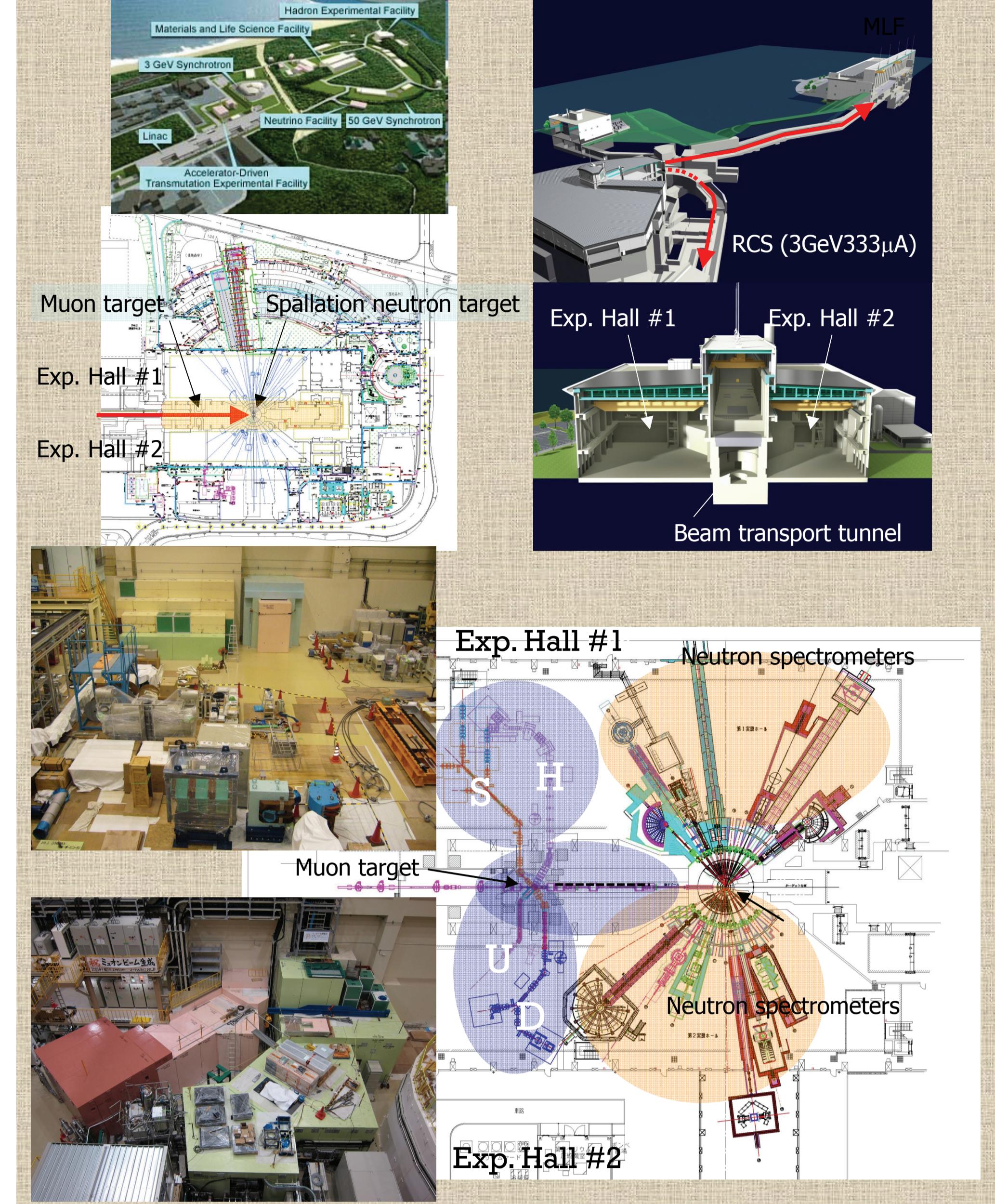


A New Muon Beamline for Fundamental Physics Study in J-PARC

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Present Status of Muon Beamlines

- 4 secondary beamlines can be extracted.
 - D line: complete under operation
 - U line: complete under commissioning
 - S line: first beam will be delivered in 2013JFY
 - H line: construction starts in 2014JFY

M2 tunnel (beam transport tunnel)

Design Concept of H line

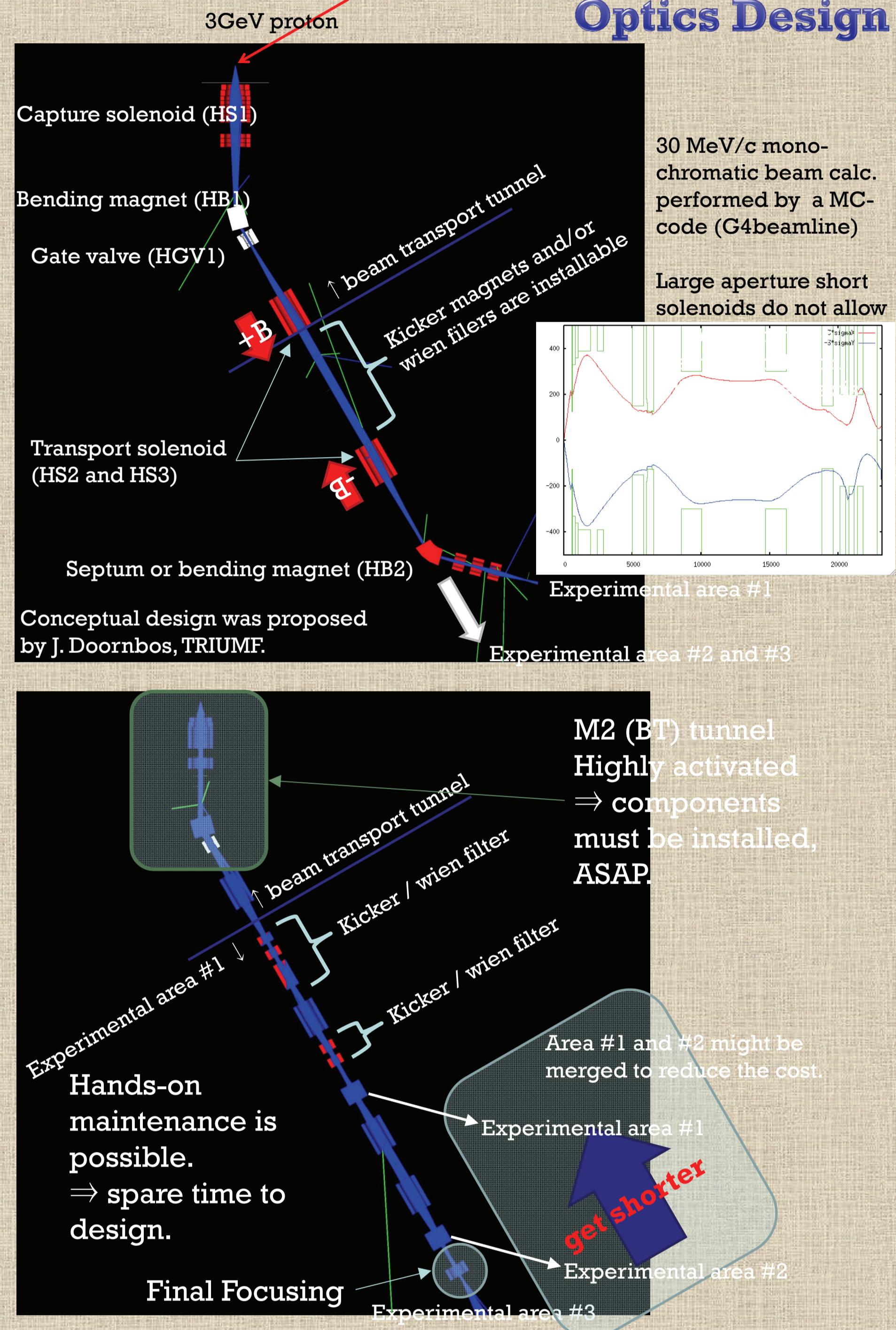
High muon intensity \Rightarrow capture solenoid
and axial focusing elements

Momentum tunability, install-ability of kicker and/or
Wien filter \Rightarrow long focus
 \times high field axial focusing elements

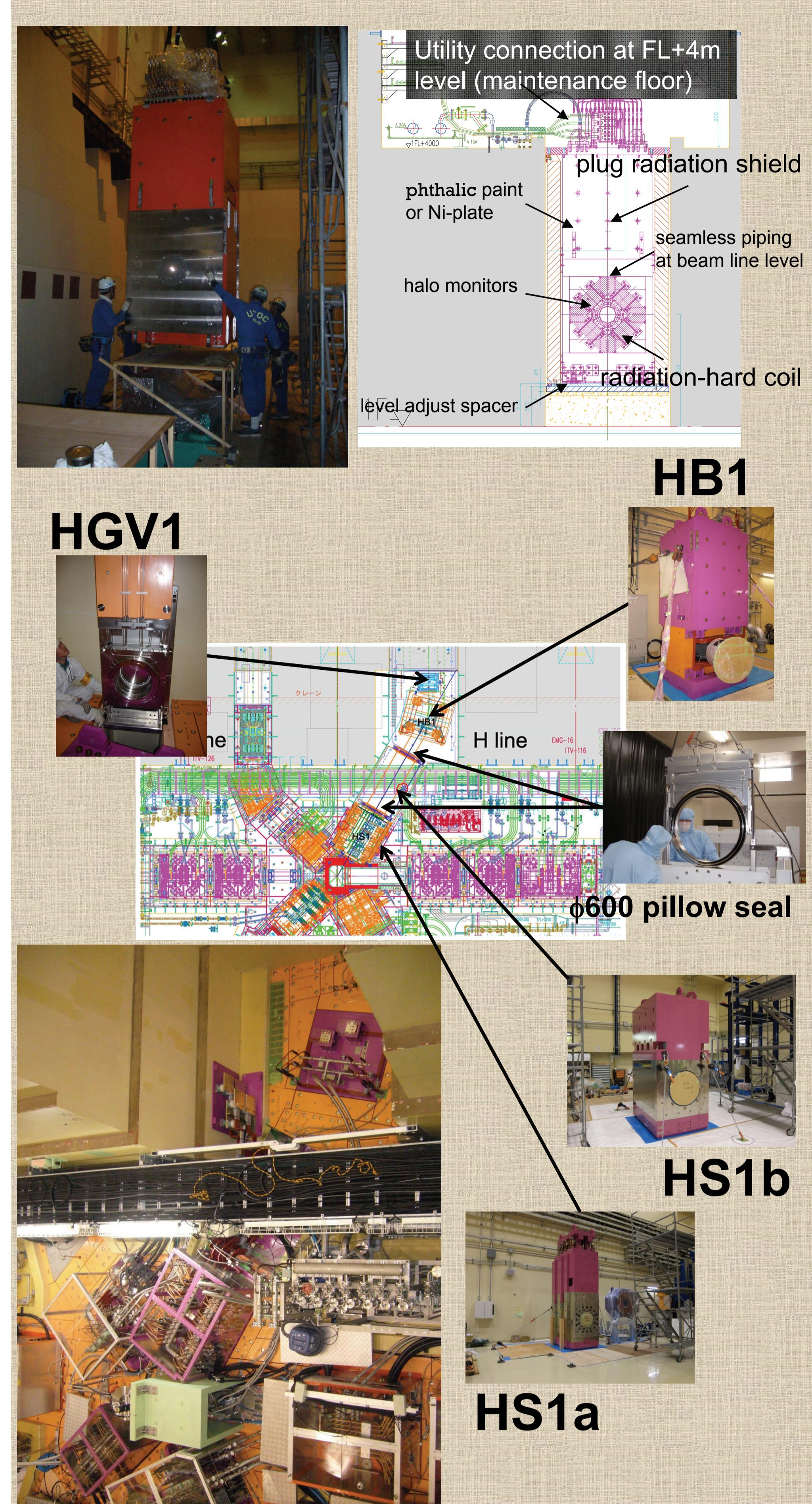
Fusion of these two conflict(?) concept:
high field capture solenoid → bend → pair of
opposite field solenoids

High intensity, good characteristic beam

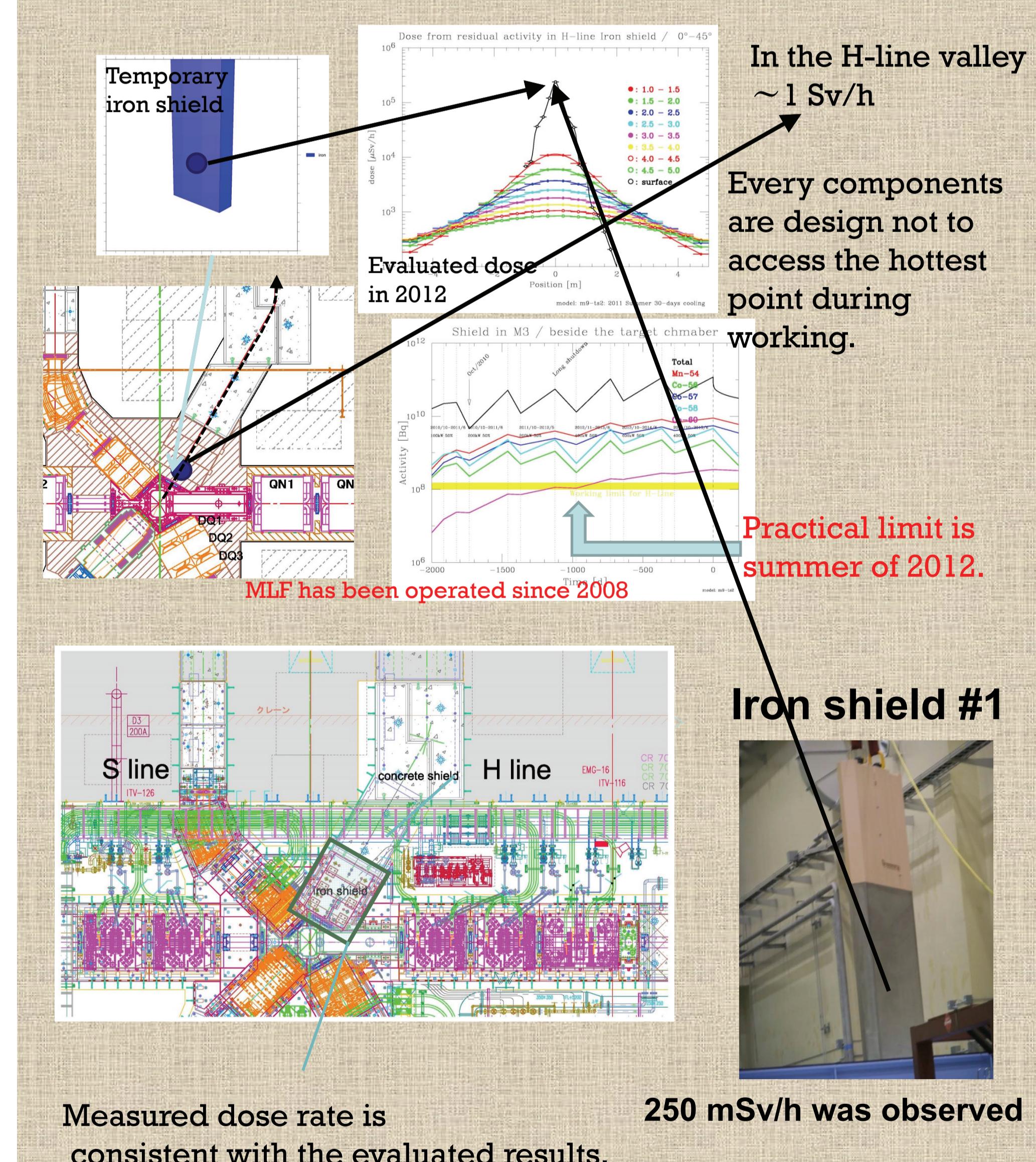
Optics Design



Frontend Magnet Installation

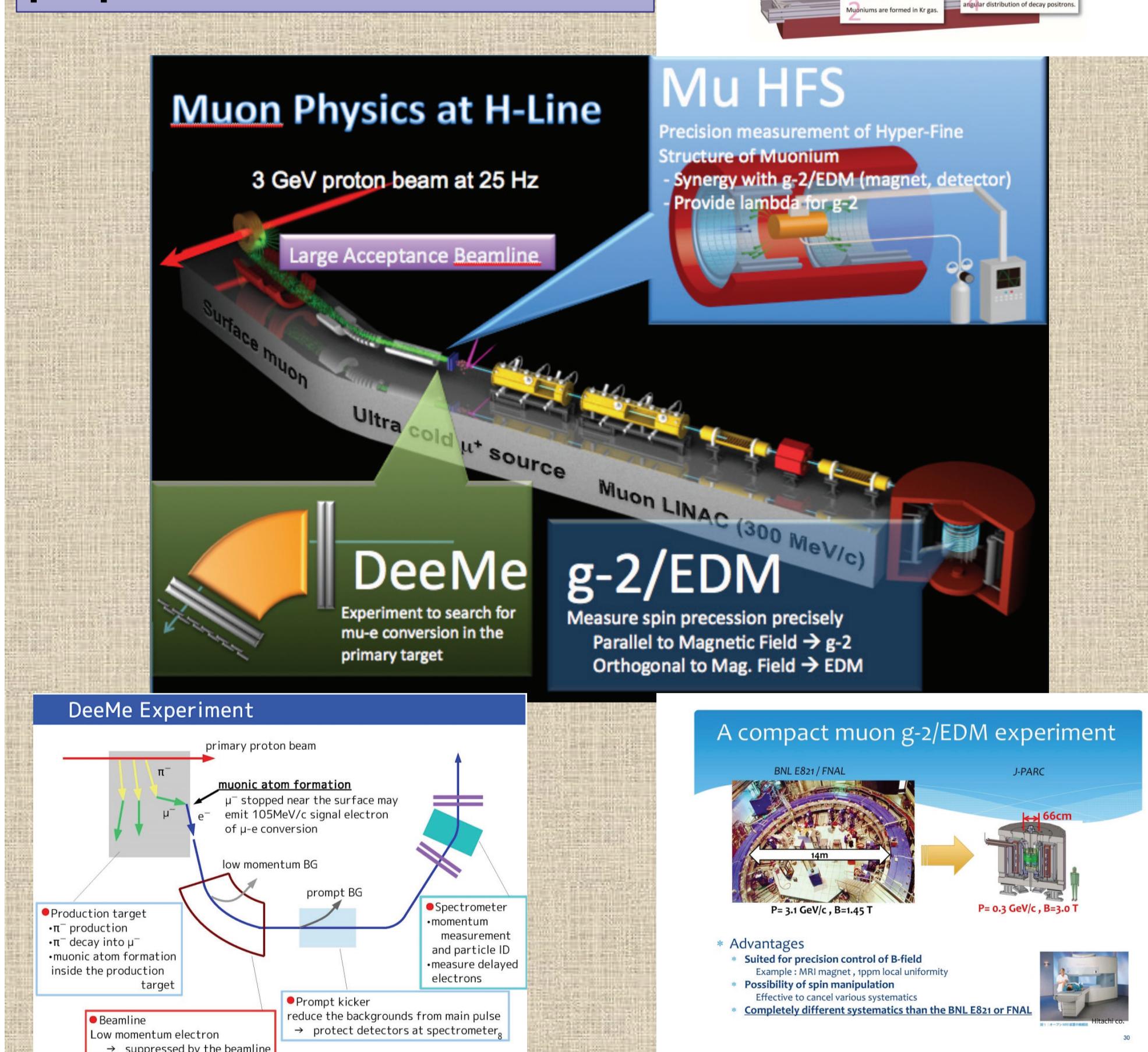


Frontend Magnet Installation

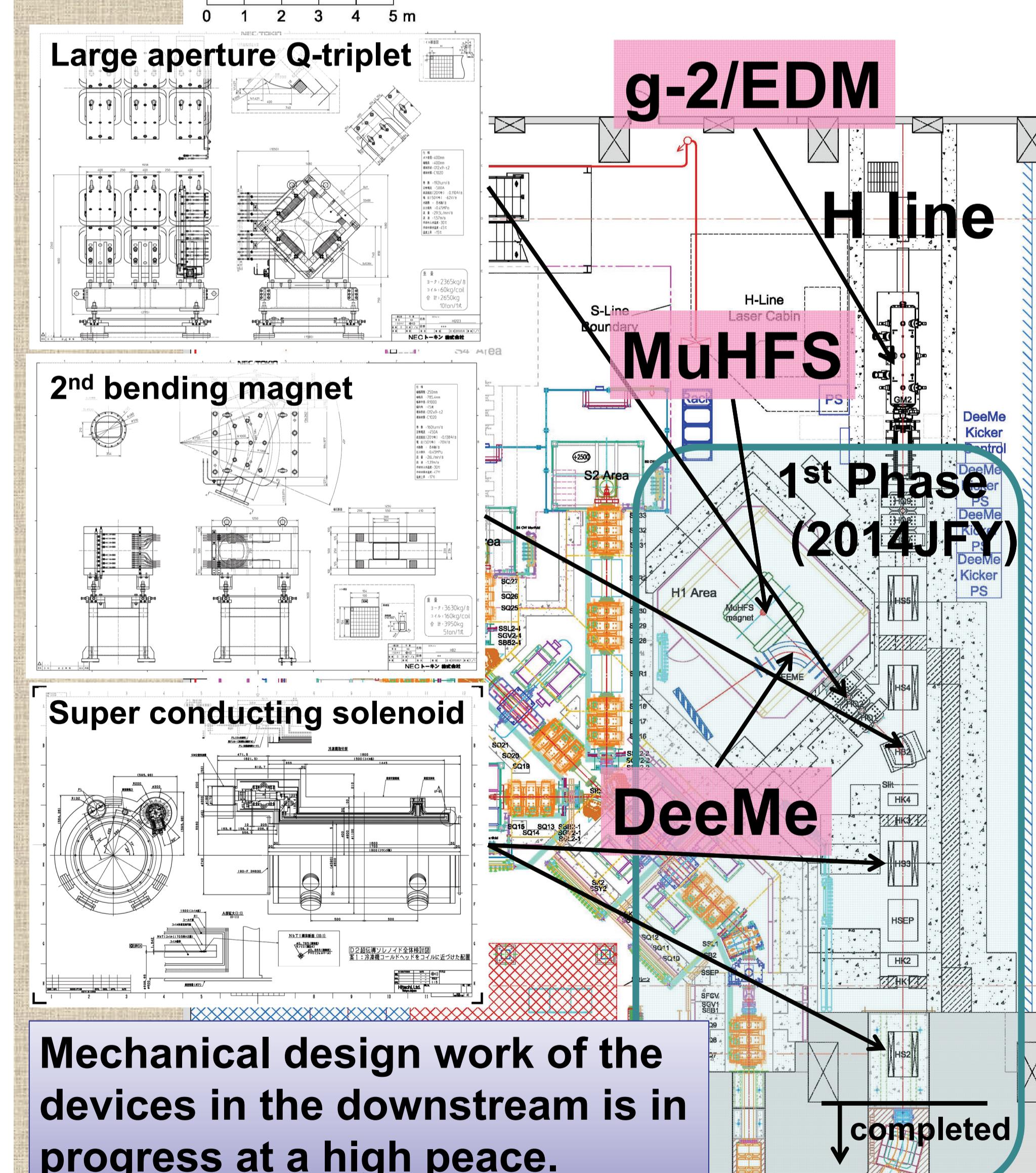


Proposed Experiments in H line

Two high precision measurements about muon (MuHFS and g-2/EDM) and a cLFV(DeeMe) search are proposed.



Progress in Design Work



SUMMARY

The frontend magnets were installed in 2012, and devices in the downstream is under designing toward the first beam in 2014 or 2015.
Surface muon yield: $\sim 100\text{M}/\text{s}$ ($= 130\text{M} \times 120\text{mstr}(\text{H line}) \times 80\%(\text{FF})$) in $\phi 4\text{cm}$
($\sigma_x = 2.1\text{cm}$, $\sigma_y = 1.1\text{cm}$), $\text{dp/p} = 5\%$.