

Title MuSEUM実験のためのRF系及びガスシステムの開発

Name Kazuo Tanaka (University of Tokyo, RIKEN)

Date 2015/9/25

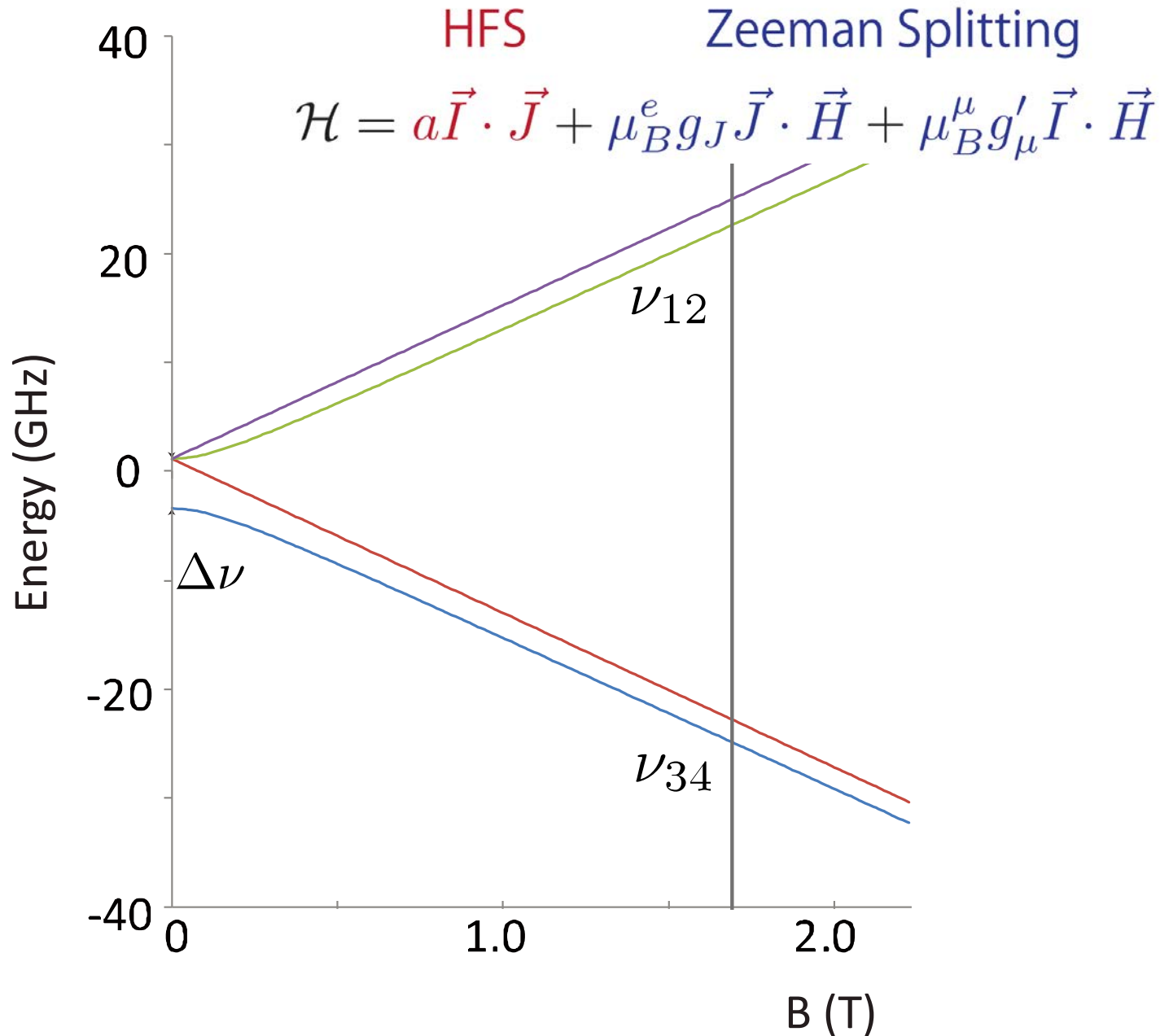
Description 25aSG-3

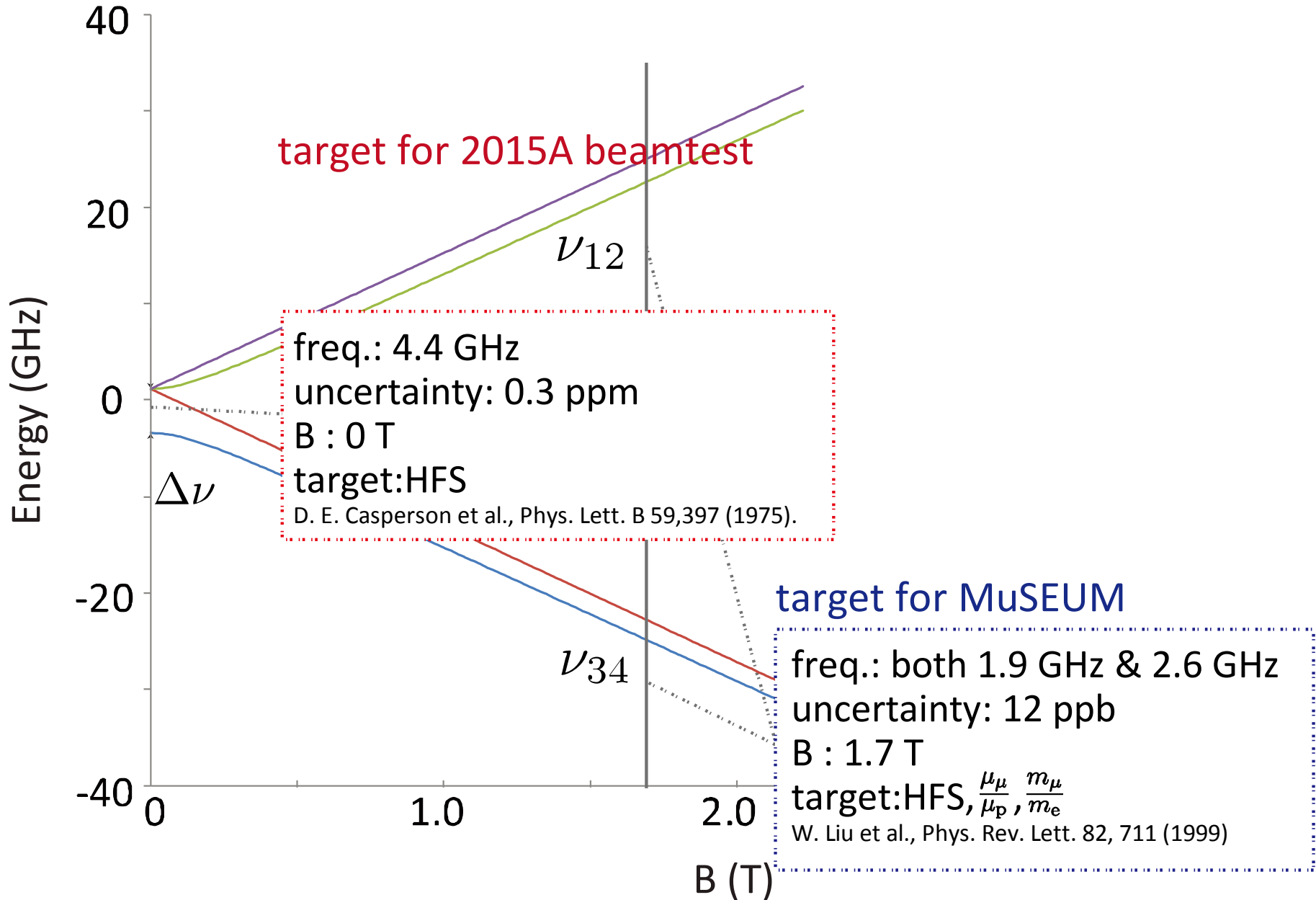
- Collaboration name
 - **Mu**onium **S**pectroscopy **E**xperiment **U**sing **M**icrowave

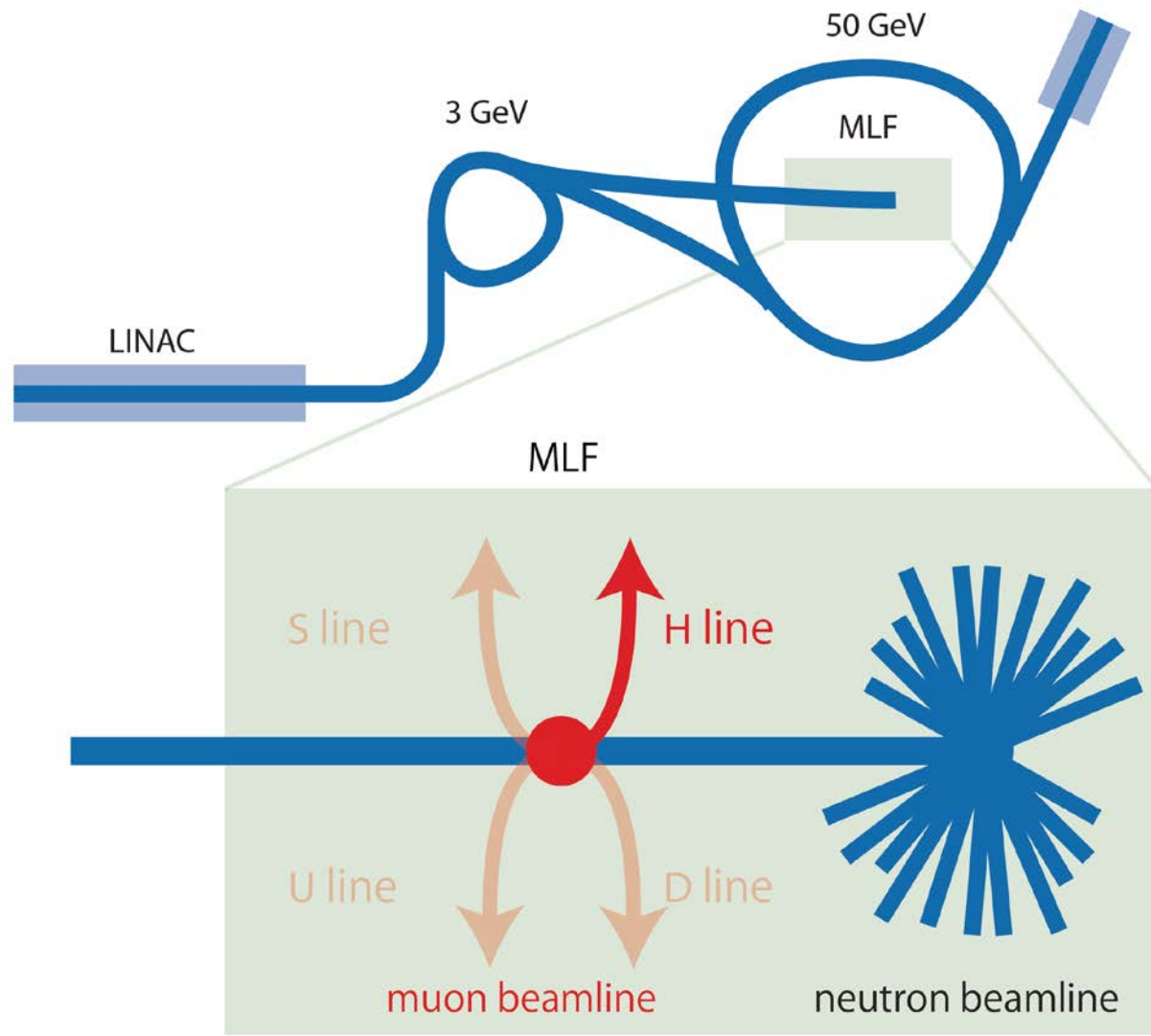


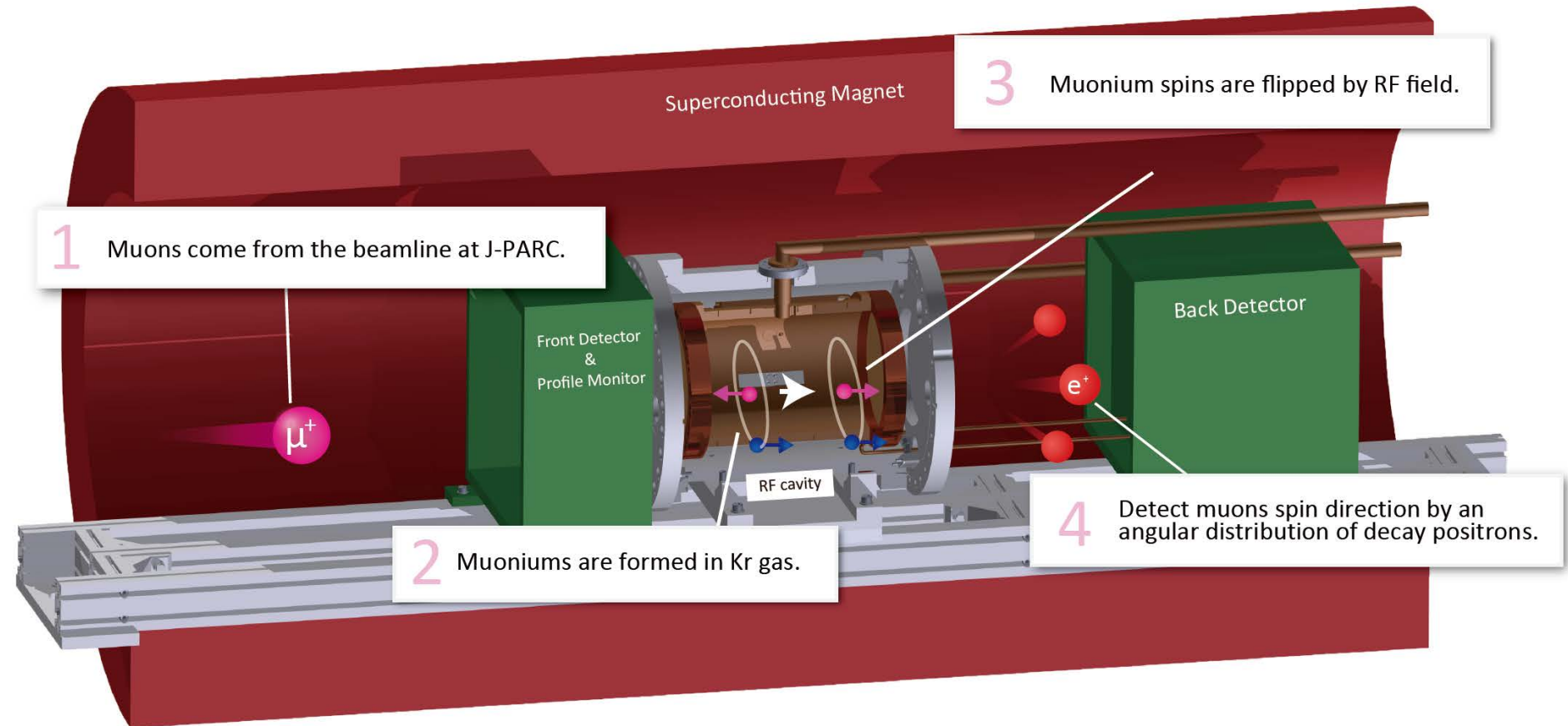
- Collaboration List (39 people, 5 Universities, 3 Institutions)

M.Aoki, Y.Fukao, Y.Higashi, H.linuma, Y.Ikedo, K.Ishida, M.Iwasaki, R.Kadono, S.Kanda, O.Kamigaito, D.Kawall, N.Kawamura, K.M.Kojima, A.Koda, K.Kubo, R.Okubo, Y.Matsuda, T.Mibe, Y.Miyake, T. Mizutani, K.Nagamine, K.Nishiyama, T.Ogitsu, P.Strasser, N.Saito, K.Sasaki, K.Shimomura, M.Sugano, M.Tajima, K.S.Tanaka, D.Tomono, A.Toyoda, H.A.Torii, E.Torikai, K.Ueno, Y.Ueno, M.Yoshida, A.Yamamoto



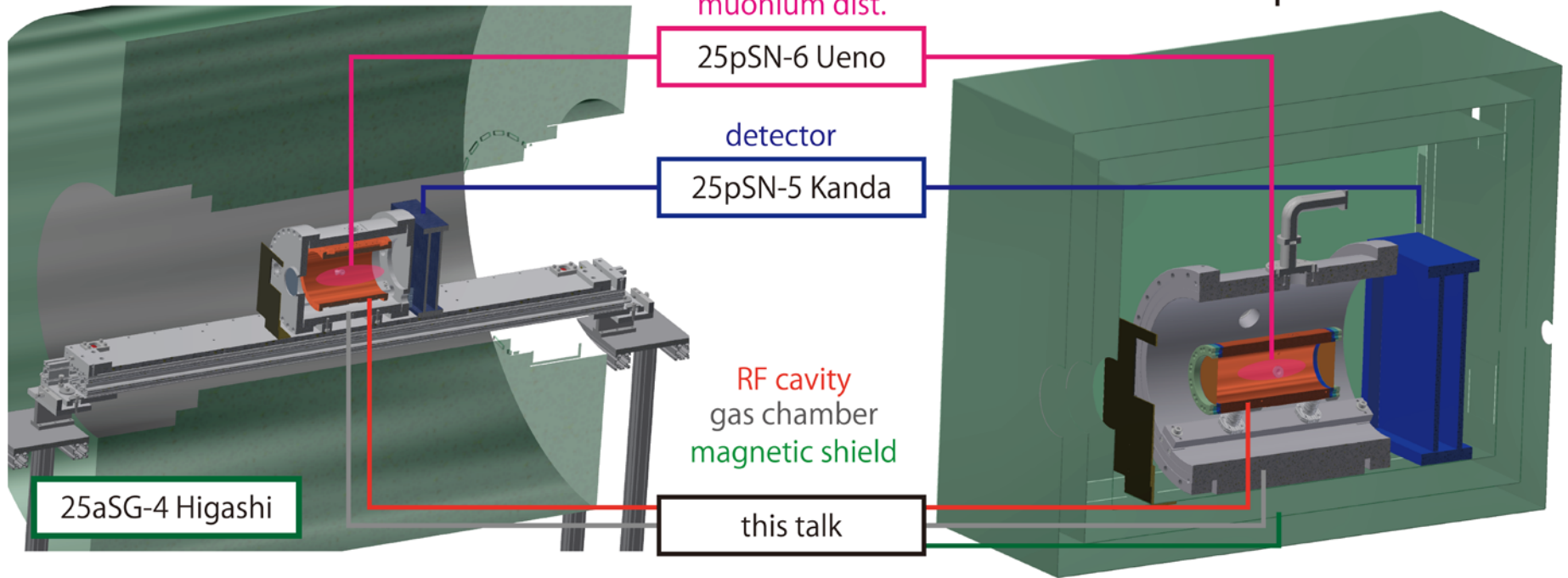






high field exp.

zero field exp.



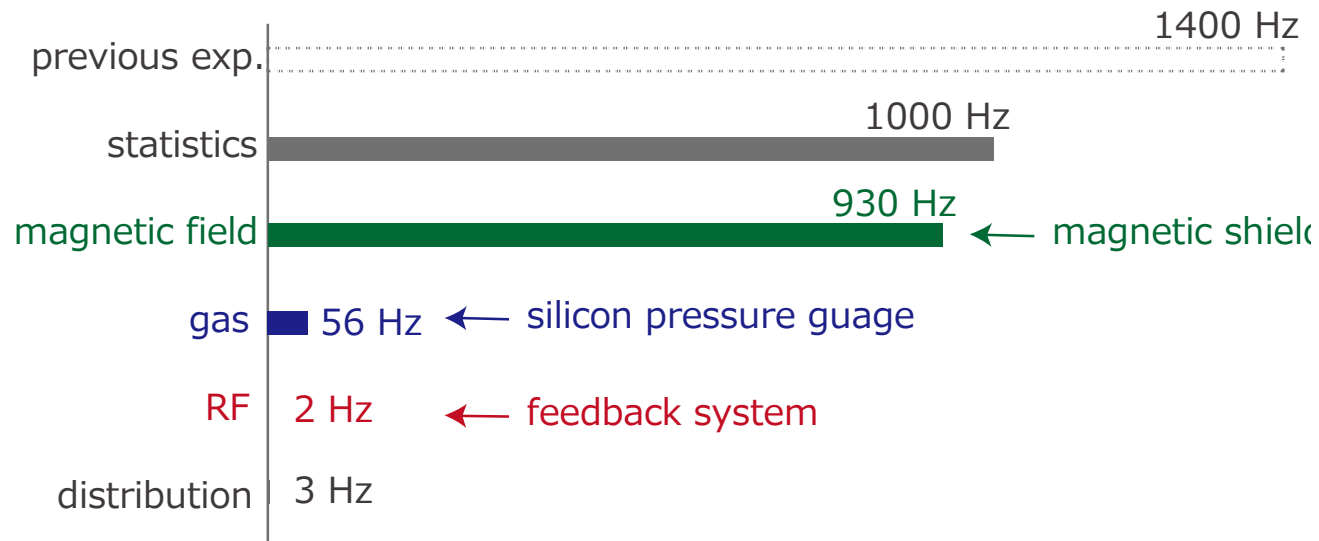
magnetic field: 1.7 T

uncertainty at previous exp. : 53 Hz

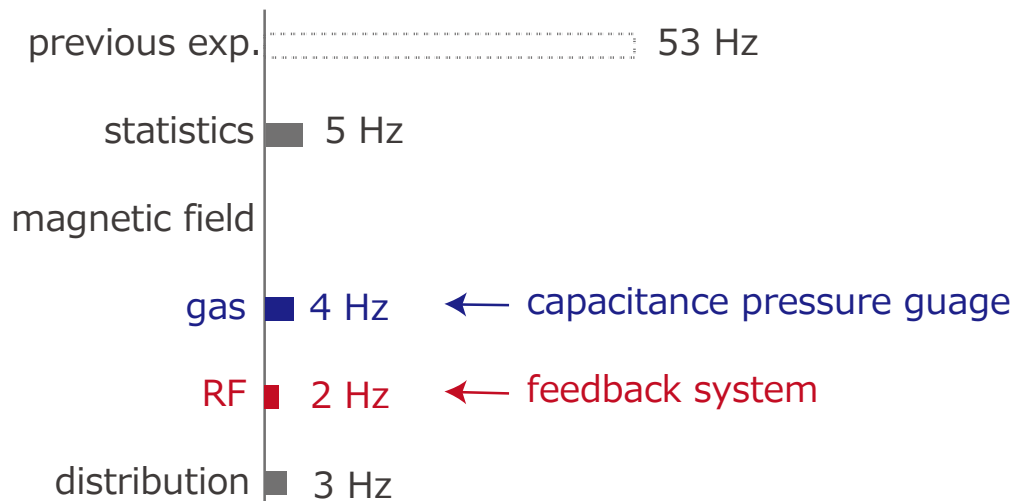
magnetic field: 0 T

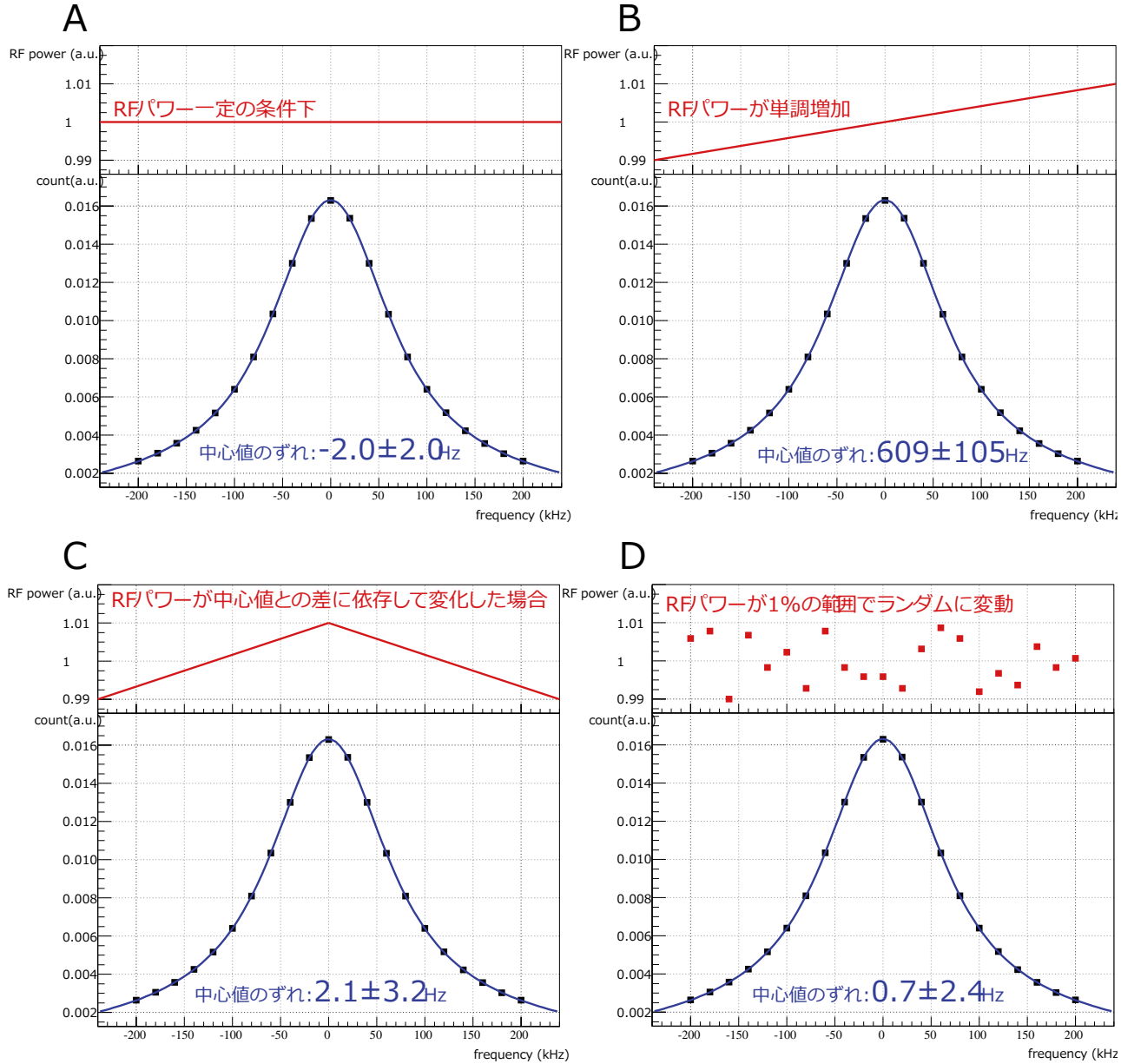
uncertainty at previous exp. : 1400 Hz

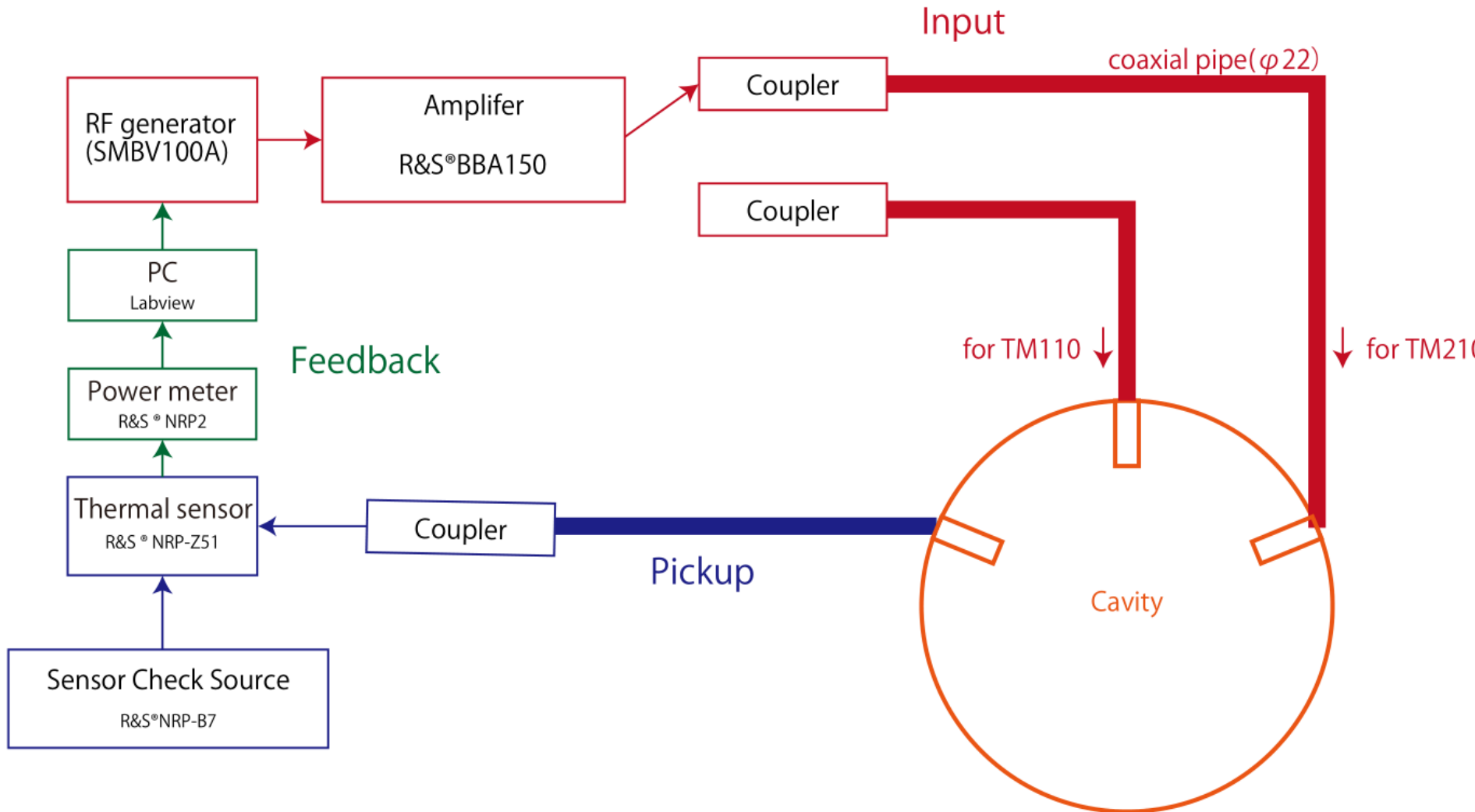
zero field exp.

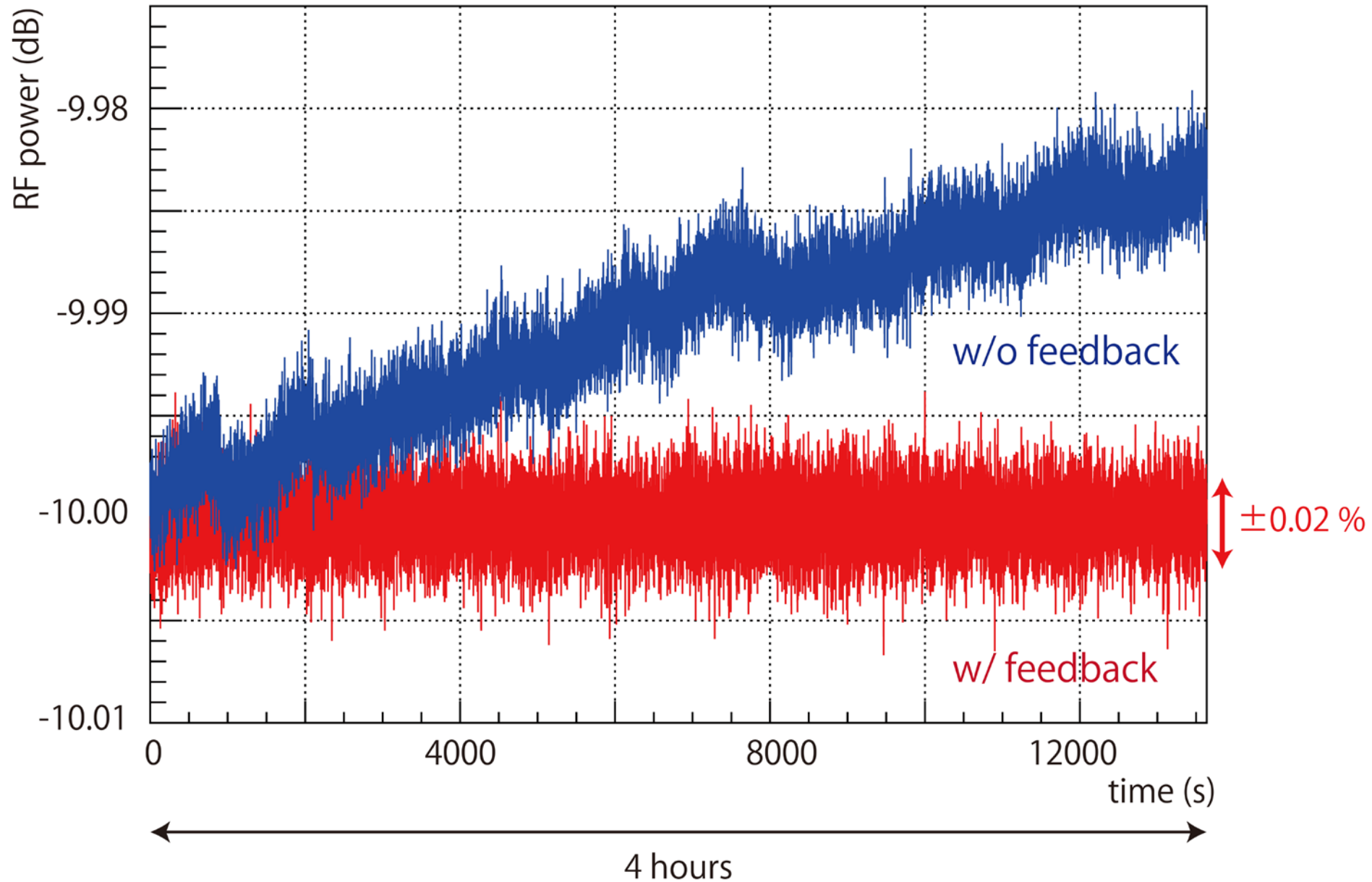


high field exp.

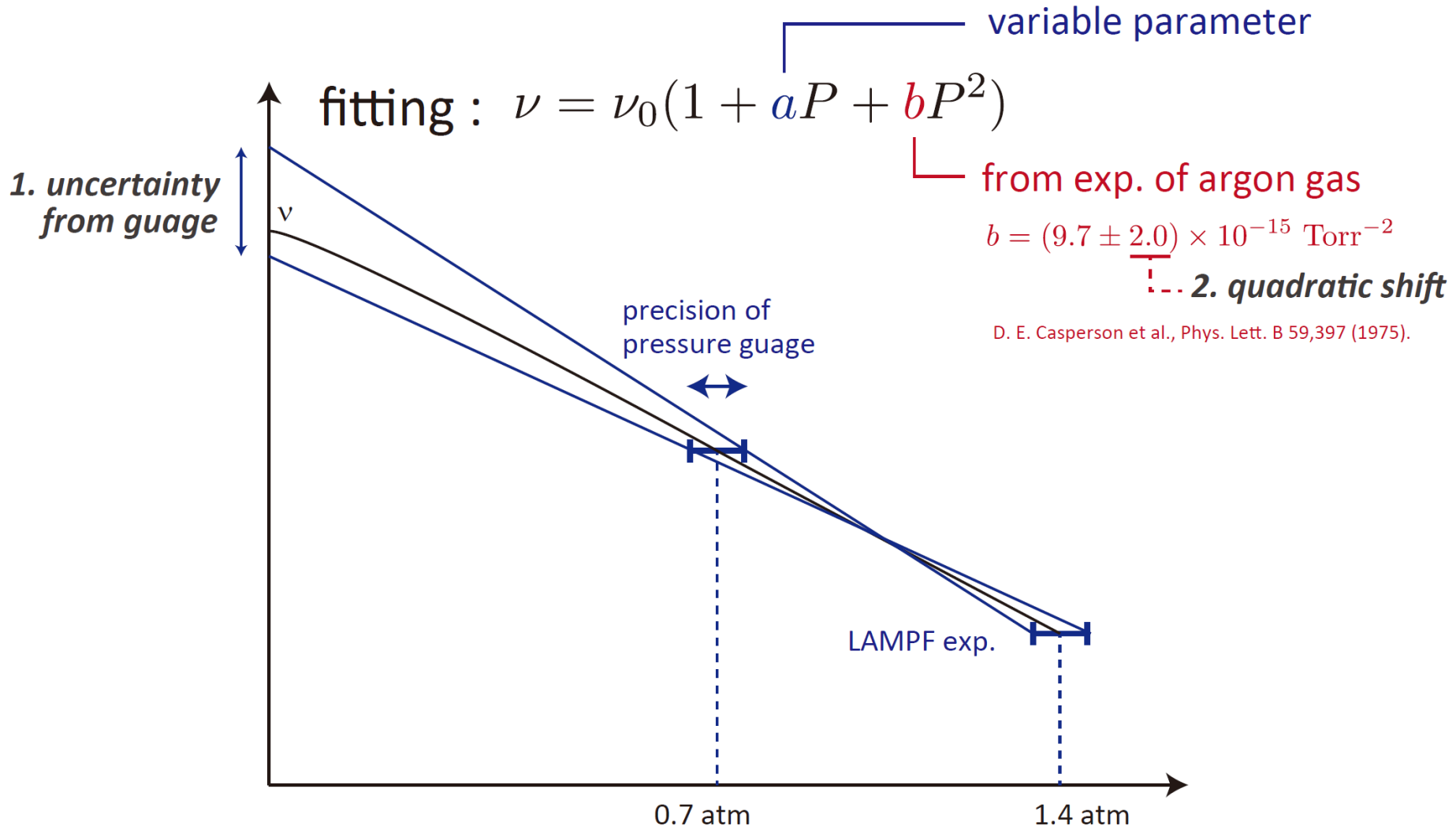








- The transition frequencies in vacuum is obtained by pressure extrapolation.

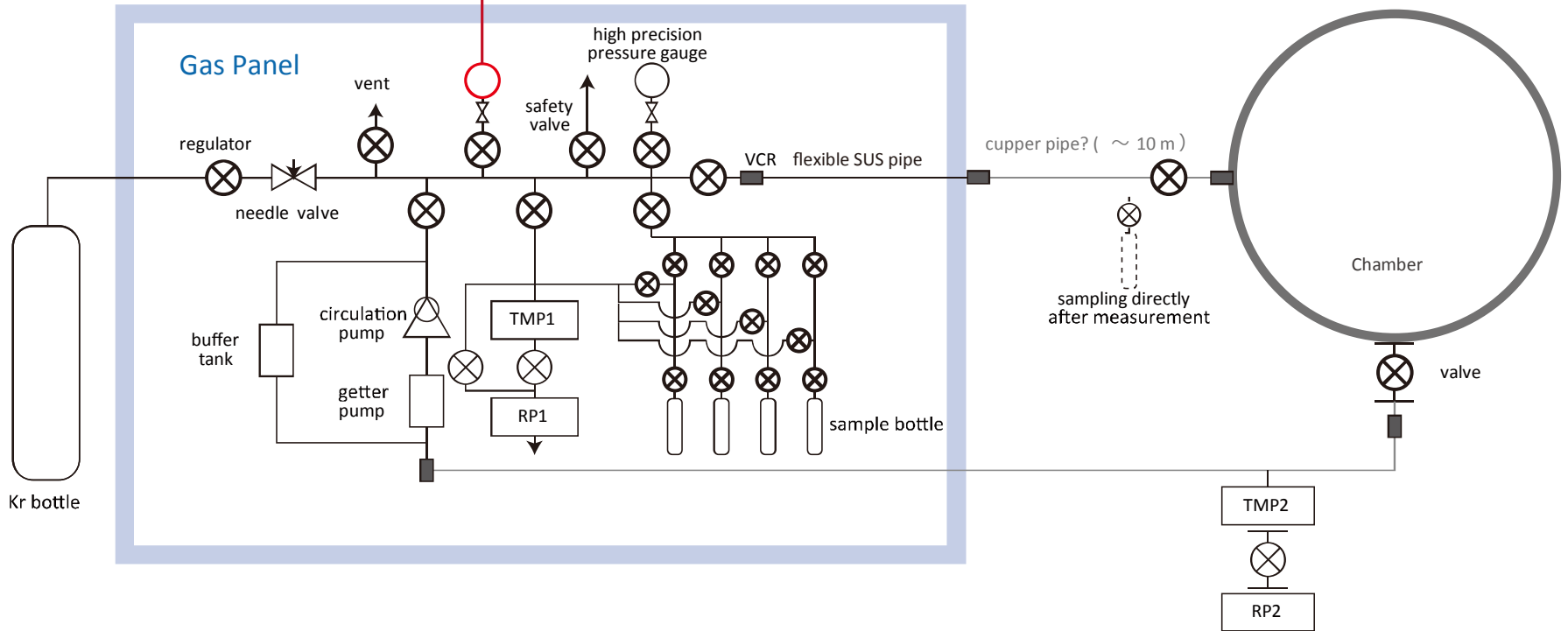


silicon gauge (relative 0.02 %)

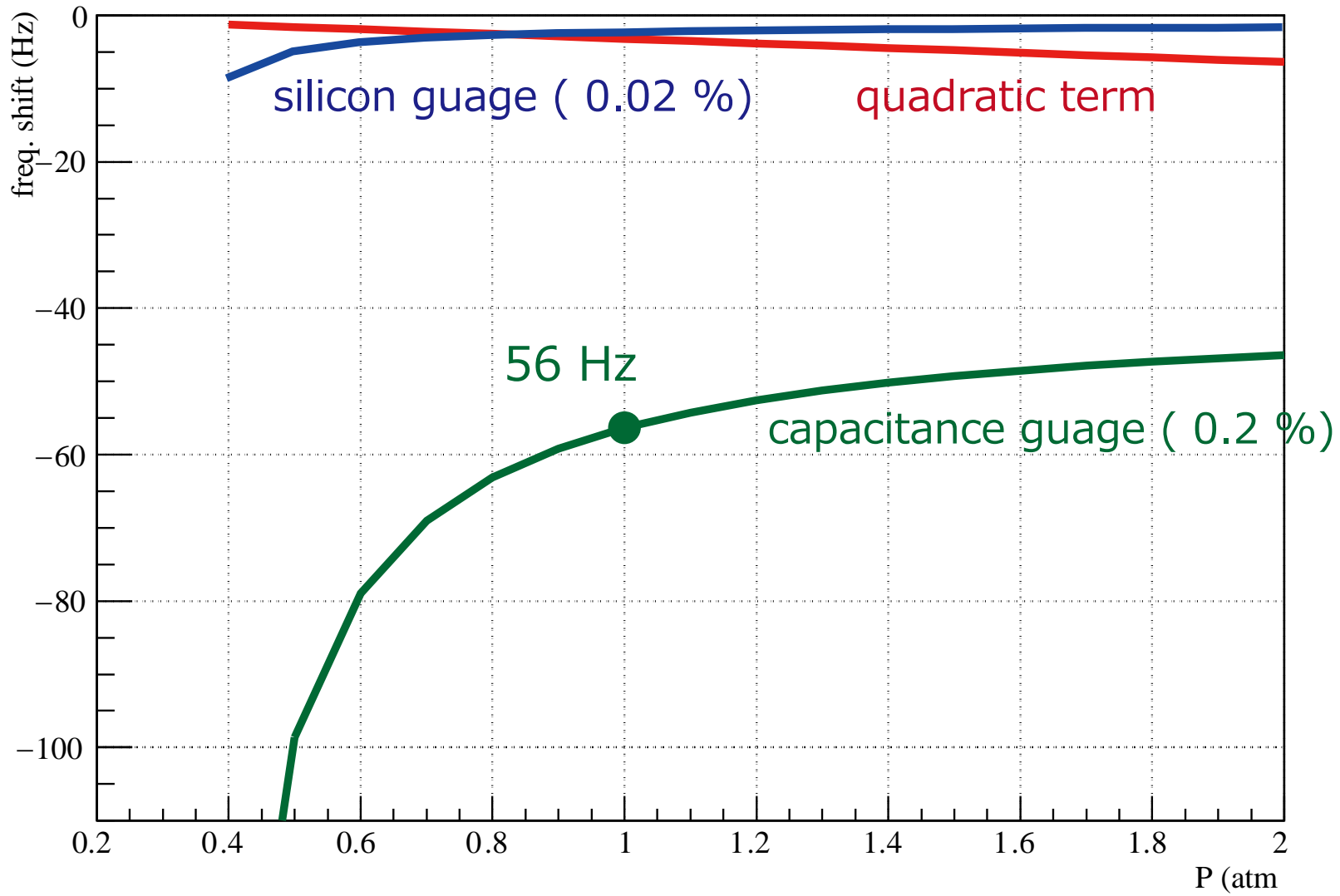
available at 2016

capacitance gauge (relative 0.2 %)

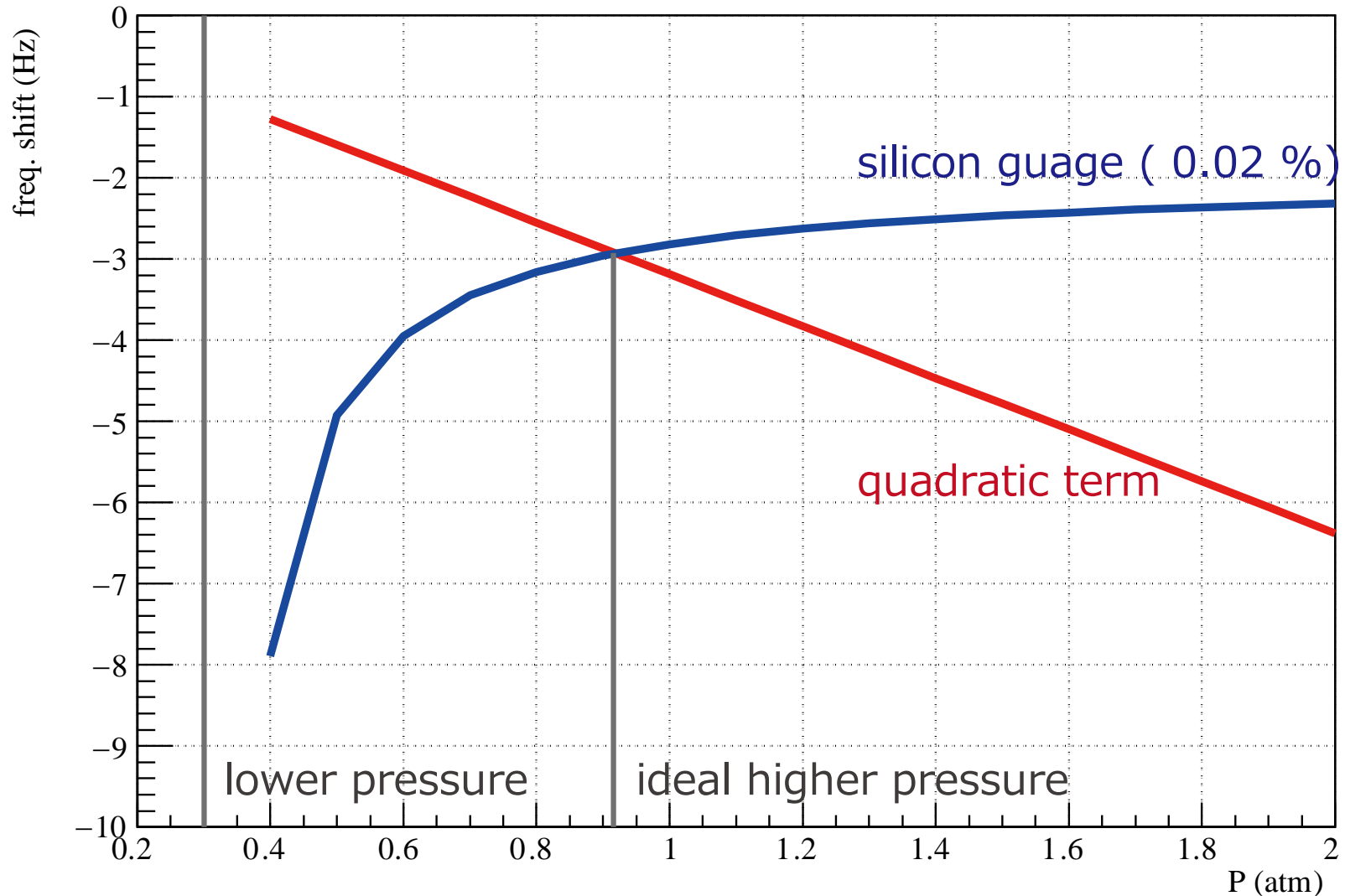
ready

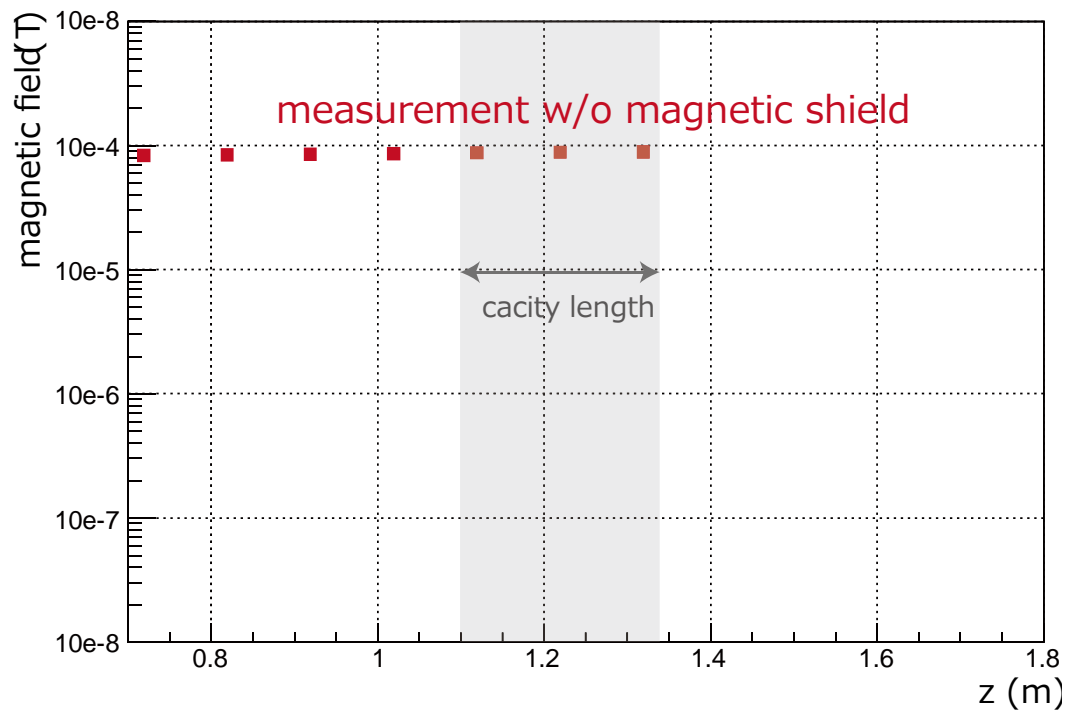
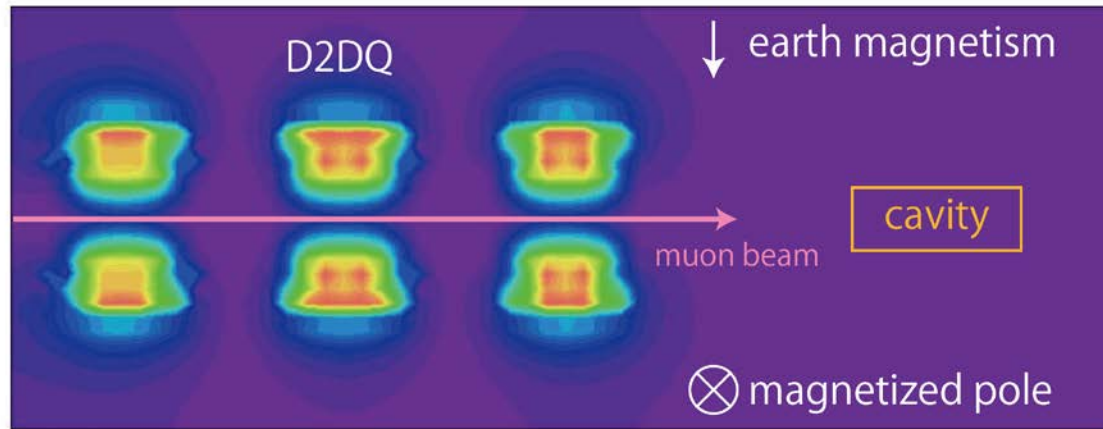


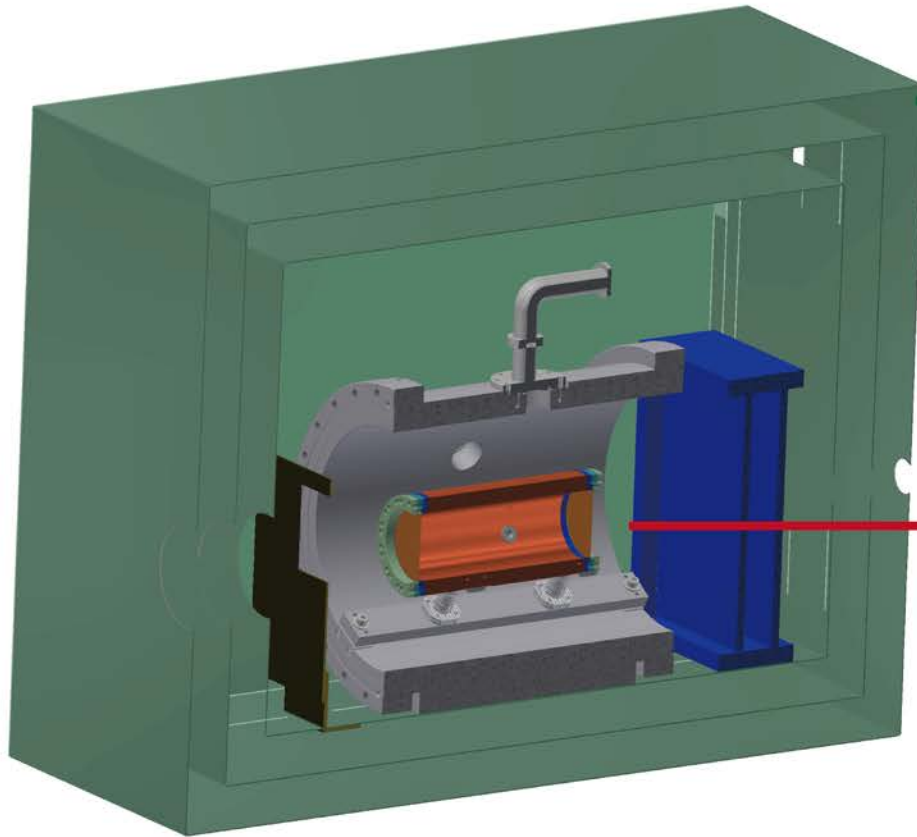
Uncertainty from capacitance guage is dominant compared to from quadratic term.



Uncertainty from pressure gauge and quadratic term are comparable by measuring in 0.3 atm and 0.9 atm.





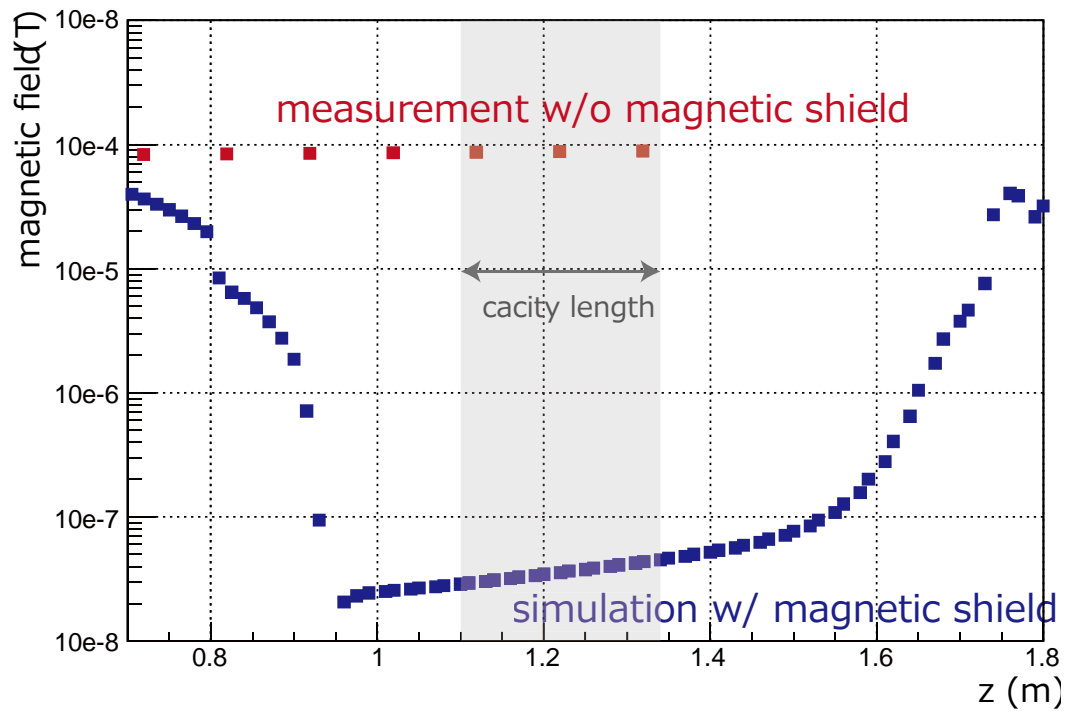
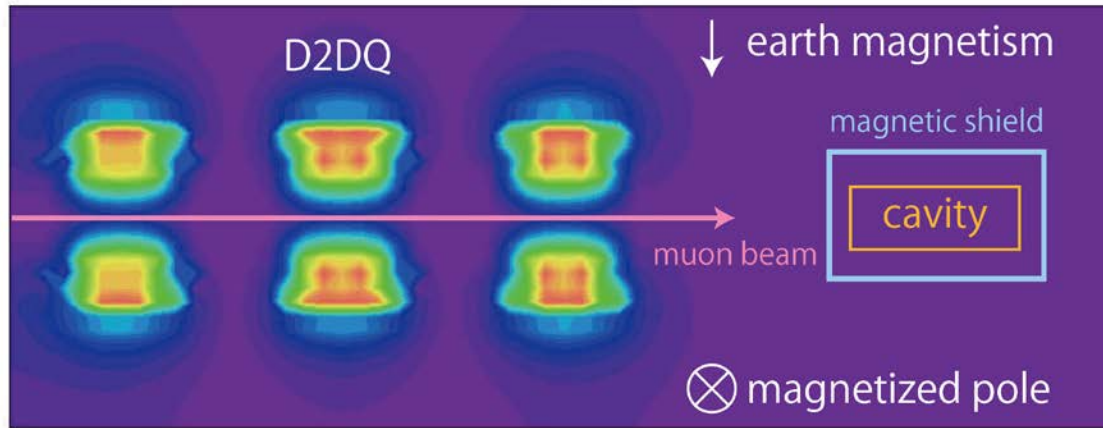


magnetic shield

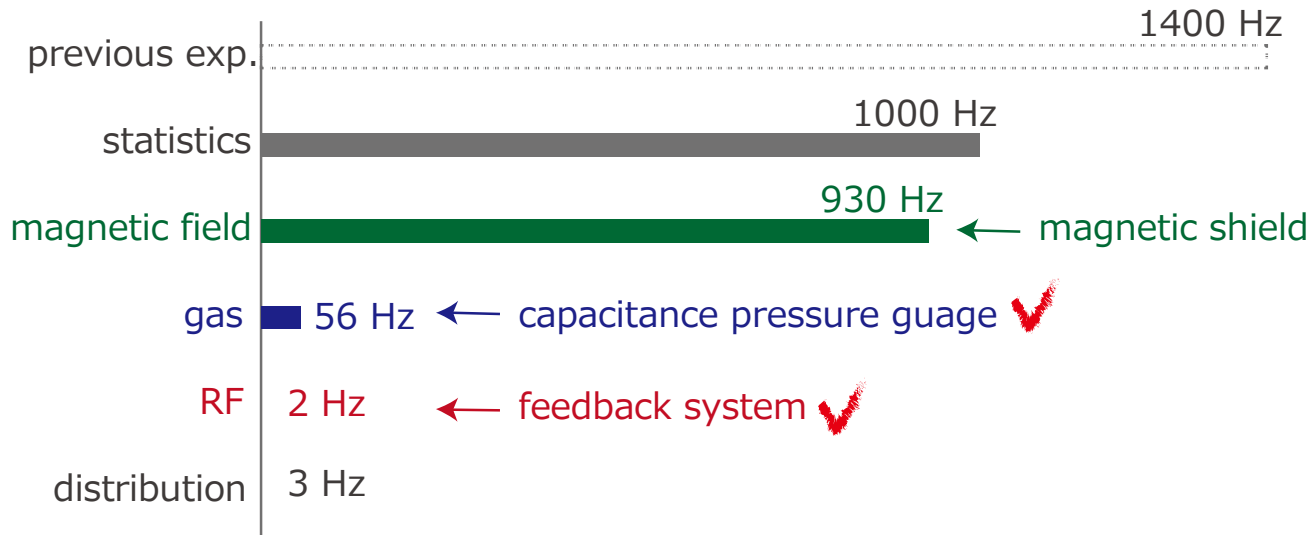
- 3 layers
- 1.5 mm permalloy plate
- leak field: < 0.65 mG

measurement of B field

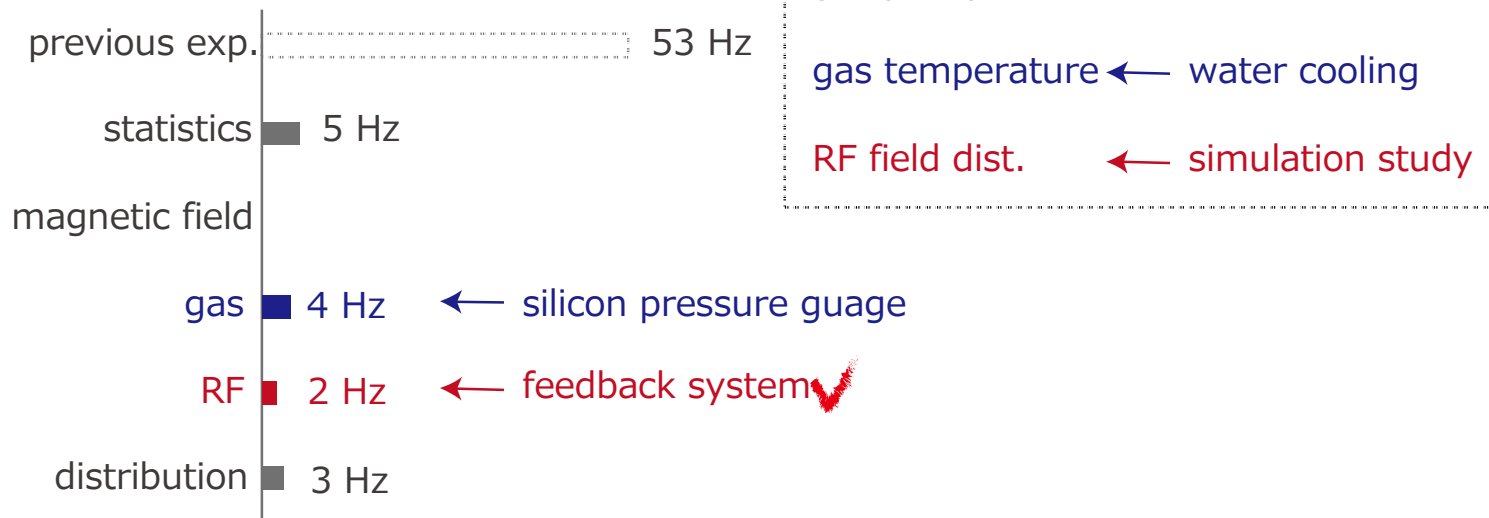
- using fluxgate magnetometer
- precision: < 0.1 mG
- offline scan & online monitoring

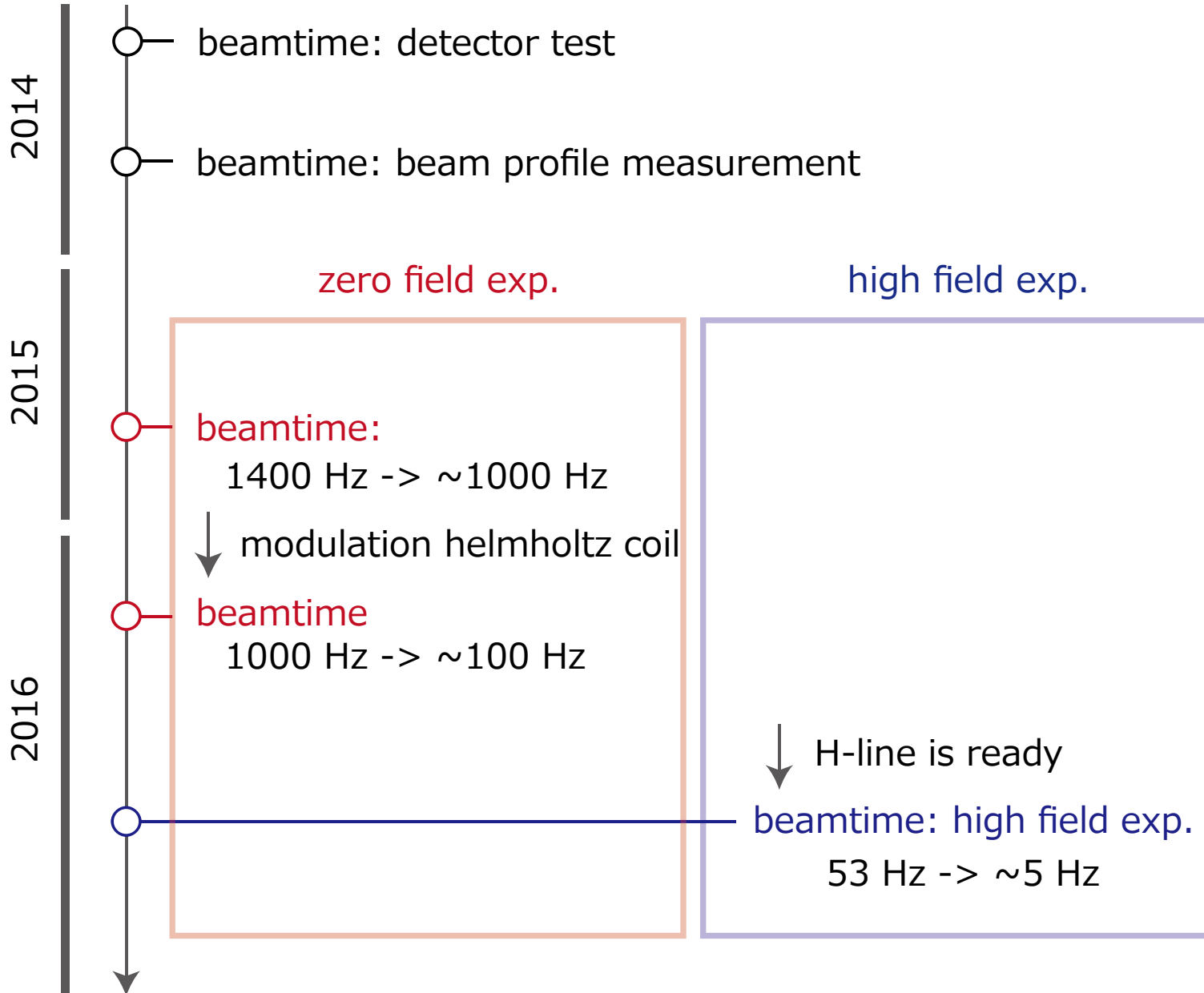


zero field exp.



high field exp.





Thank you for your attention!

