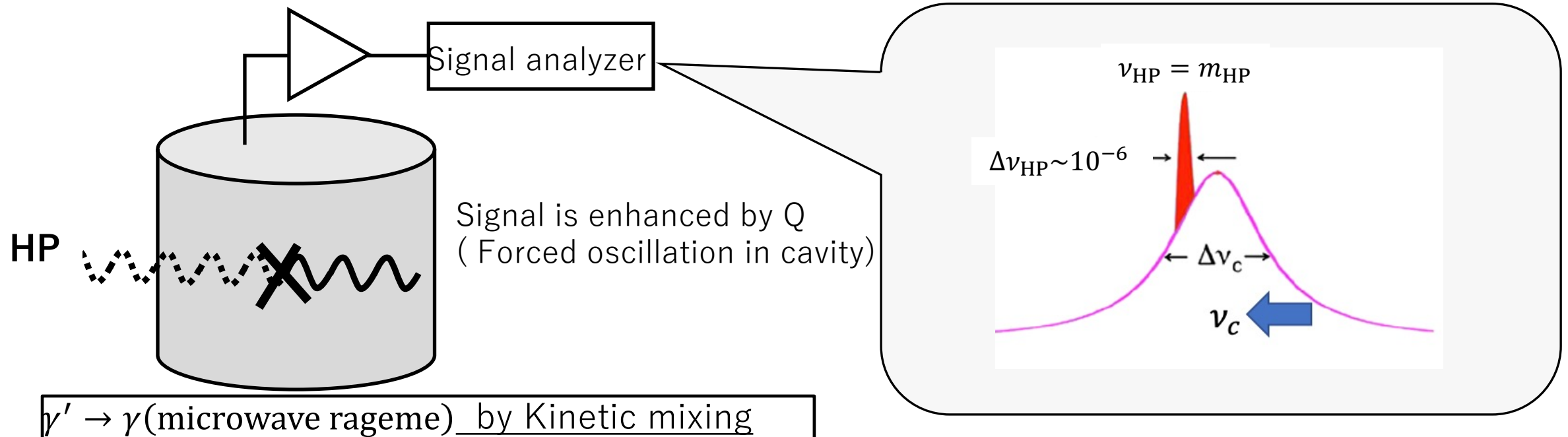


Hidden Photon Search at Tohoku and future

March 29th, 2022
Yasuhiro Kishimoto

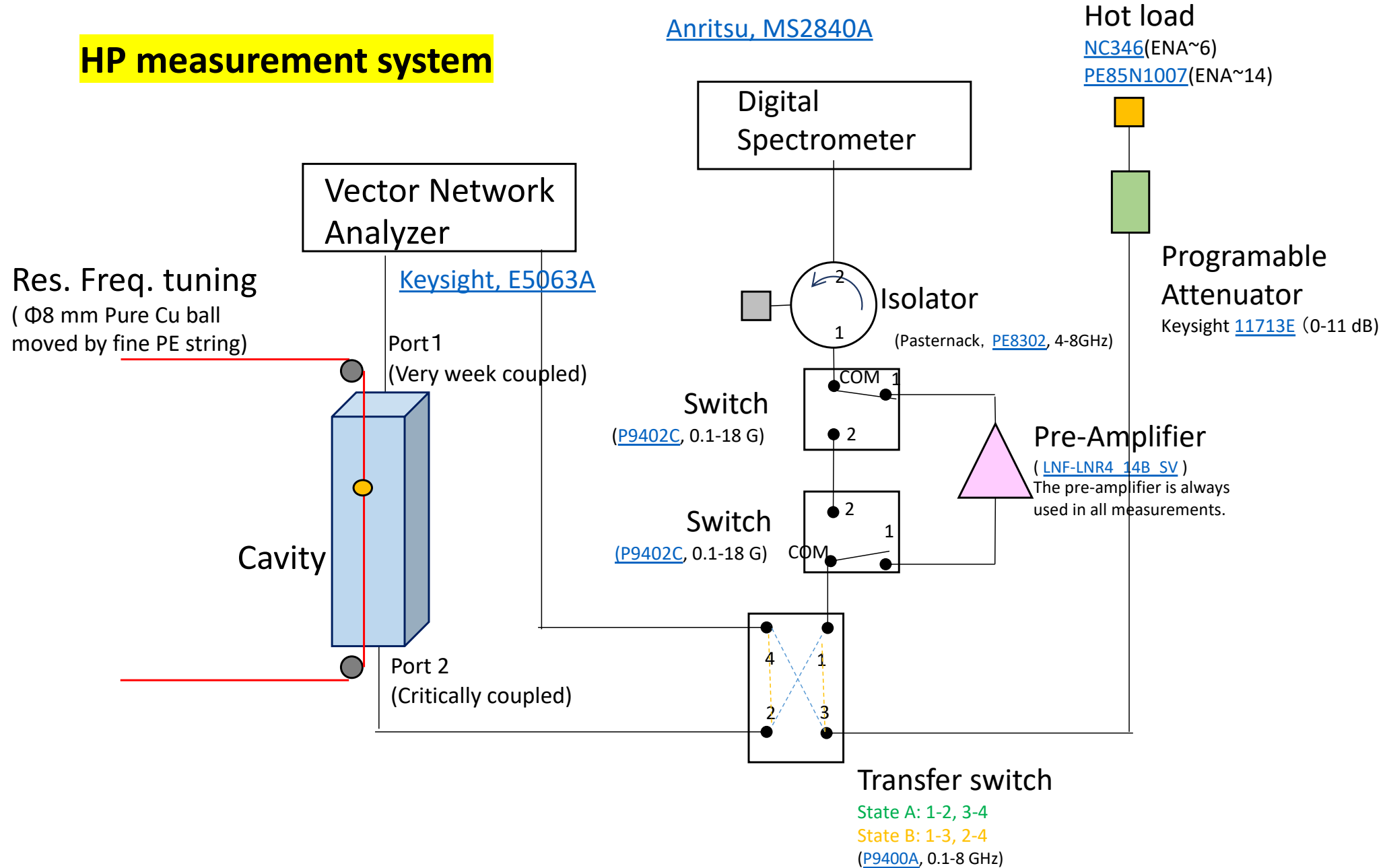
DM HP search in Tohoku (a polt experiment for DM Axion)

- Hidden photon (dark photon, para-photon) is one of dark matter candidates.
- HP converted into photon.
 - $\gamma' \rightarrow \gamma$ with kinematical mixing χ
- Halo scope without magnetic field can detect it.



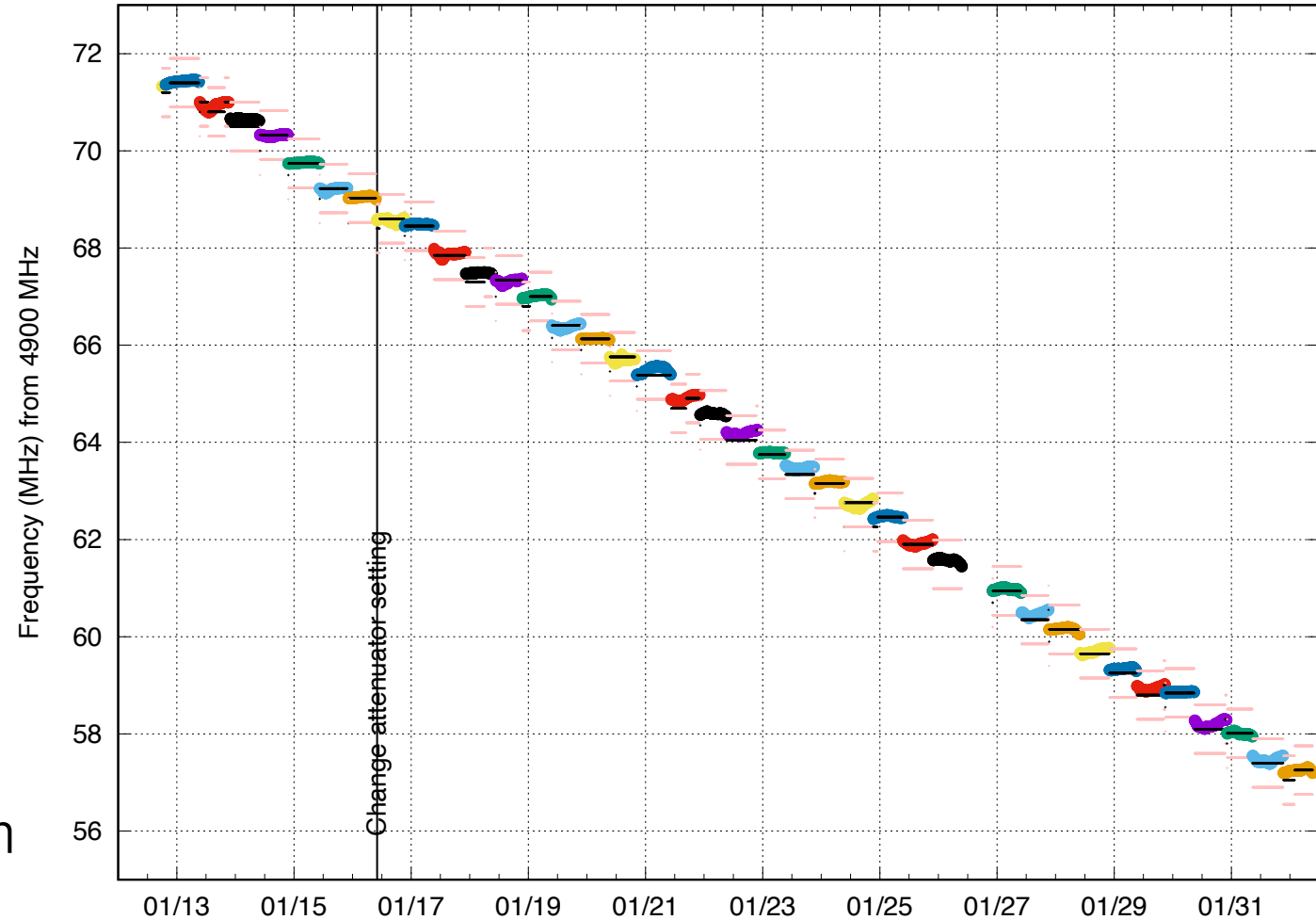
Experimental setup

HP measurement system

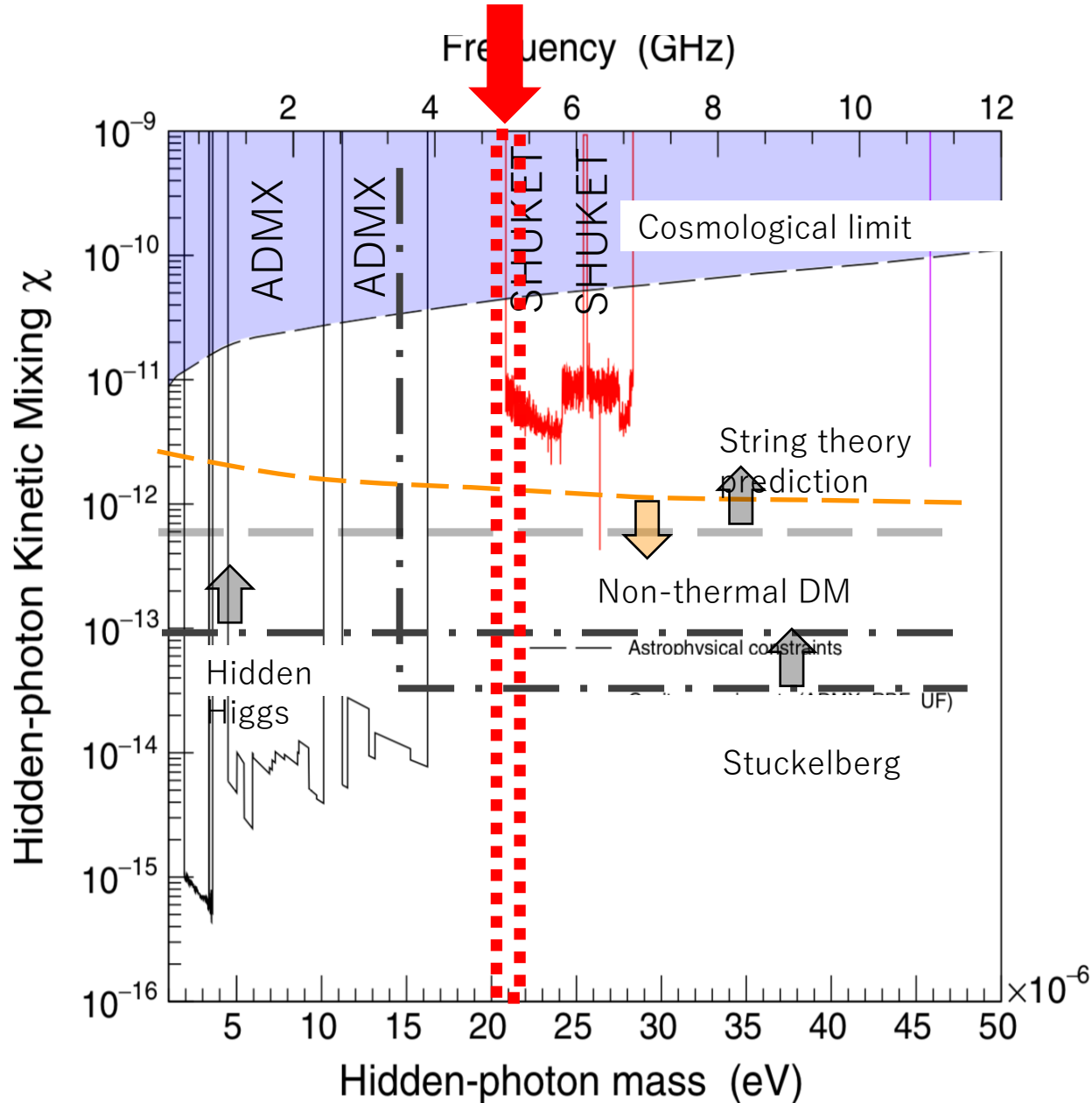


The Runs

- History
 - Commissioning started from Nov. 11th, 2022.
 - Physics runs from Dec. 8th.
 - Stable searches with resonance frequency scan from Jan. 12th, 2023.
 - Stop on Feb. 1st to concentrate analysis.
- Summary
 - 4,955- 4,972 MHz
 - ~12 hour runtime for each run

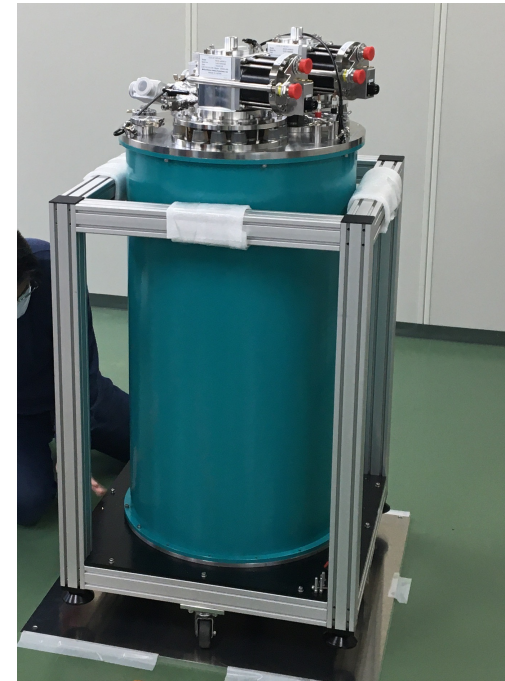


The result here will come.



• After reporting the current result:

- HP search in cryogenic condition (4 K).
- Axion search with $B=9$ T.
9 T at $\Phi 110$ mm, $L=200$ mm



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