

Current status of the LEPS2 experiment

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Search for K-pp bound state

Kaonic nucleus can exist ?

- predicted from attractive nature of the $K\bar{N}$ interaction
- doorway to high dense matter
- the simplest one : K-pp bound state

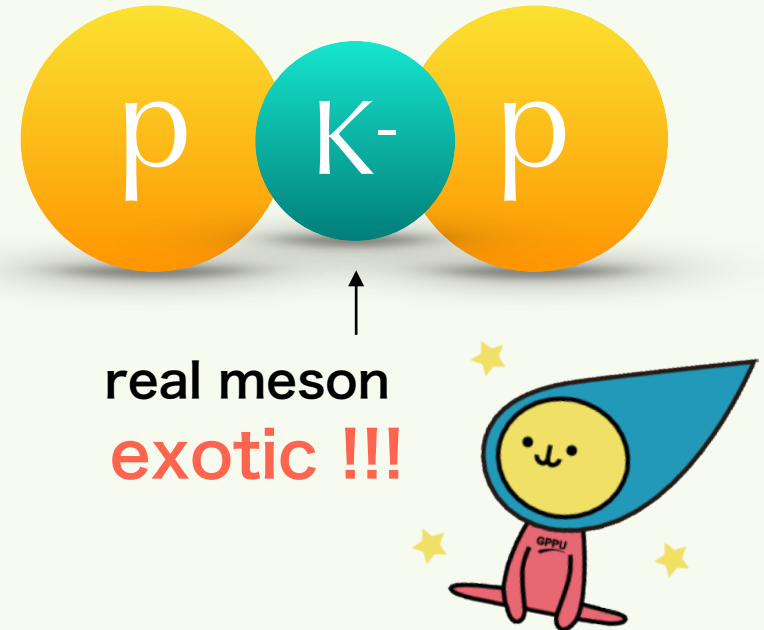
K-pp search experiment

- J-PARC E15 ... B.E. ~ 50 MeV
- J-PARC E27 ... B.E. ~ 100 MeV

We should answer following questions.

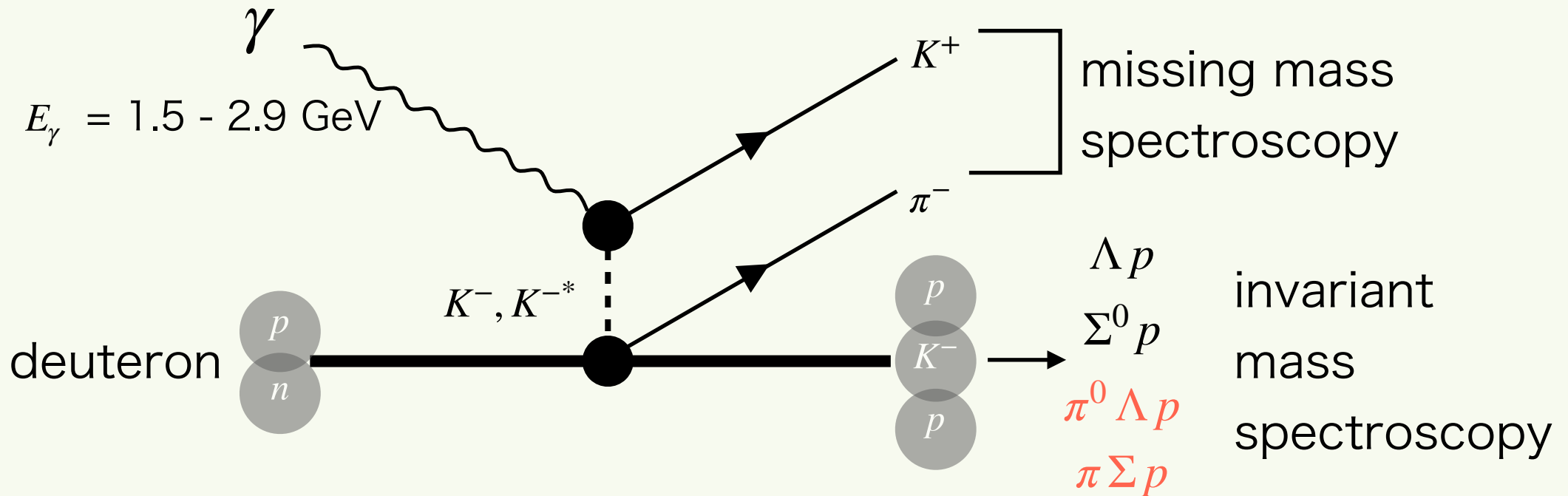
- K-pp bound state really exist?
- Binding energy is shallow? deep?
- Kaon is keeping its identity in the bound state?

➔ **New search experiment with different formation process**
... **Photoproduction !!!**



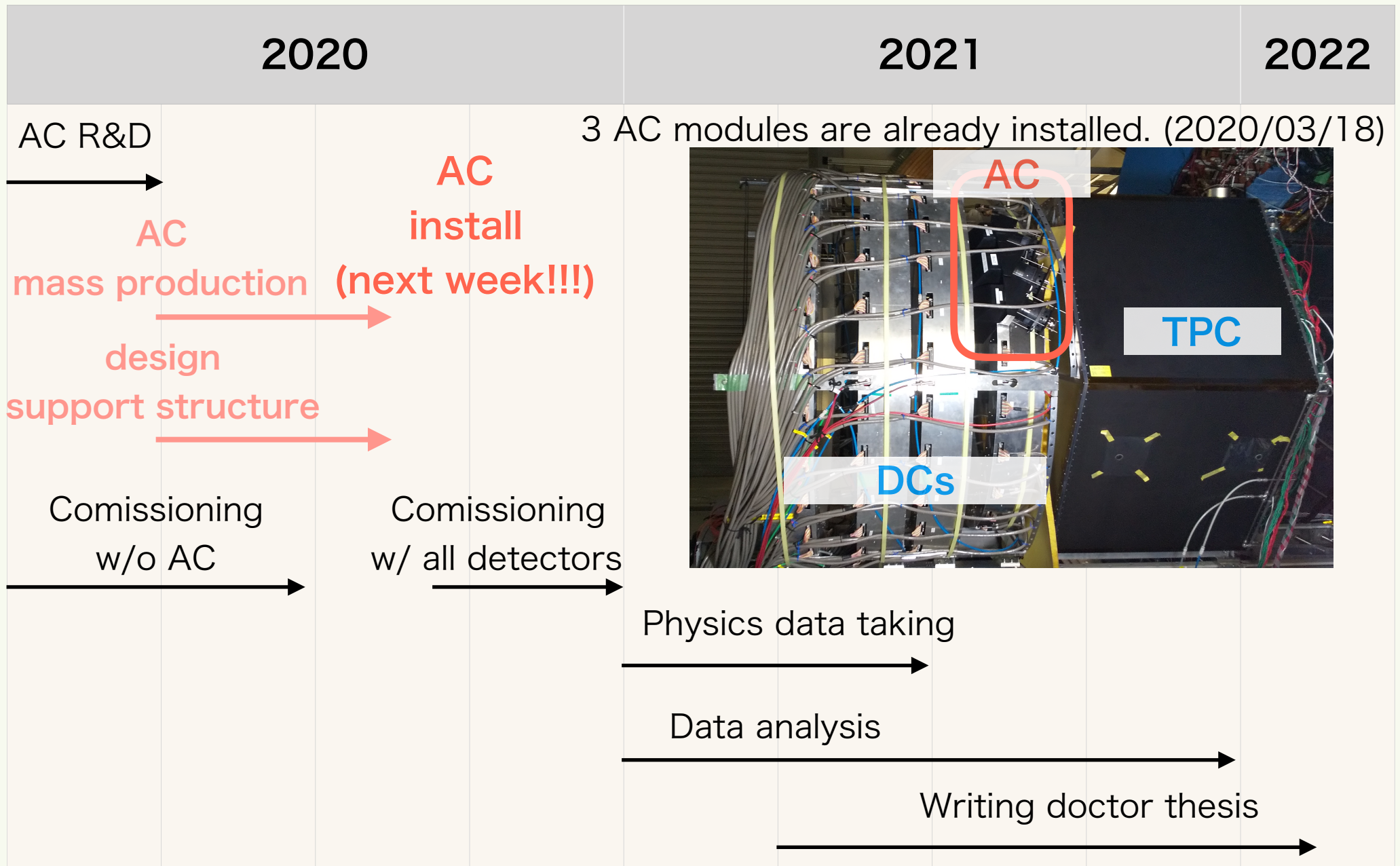
Research plan

Search for K-pp bound state **via photoproduction** LEPS2 at SPring-8



- measure the binding energy and width
 - establish the existence of K-pp bound state
- measure the decay ratio (**mesonic** and nonmesonic decay mode)
 - obtain information about the structure of K-pp bound state

Research plan and status



Study abroad plan

- I've already visited abroad for 32 days.
- Remain ~ 2 months
- I join the kaonic atom experiment, SIDDHARTA-2 @DAFNE, INFN, Italy.
 - precise measurement of $K\bar{p} - N$ interaction
 - X ray detector (SDD (Silicon Drift Detector))
 - ~~visit plan 1 : ~ 1 month between Nov. - Dec. 2020~~
 - visit plan 2 : ~ 1 month between Jan. - Feb. 2021
 - international workshop : STRANU workshop @ ECT* 24 - 28 May 2021
 - online plan : **monthly meeting**
 - new detector (Kaon monitor) ... improve S/N
 - analysis

