

# GPPU progress status report

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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

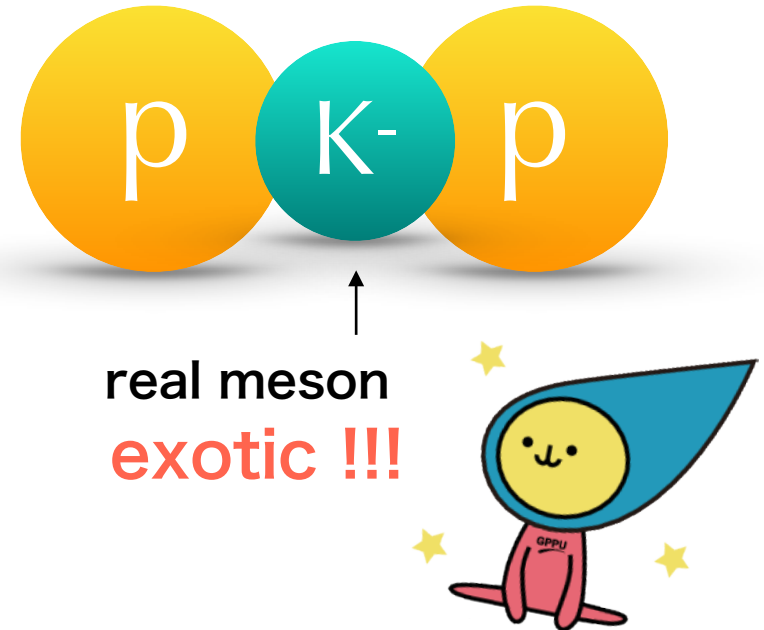
K-pp search experiment

- J-PARC E15 ... B.E.  $\sim 50$  MeV
- J-PARC E27 ... B.E.  $\sim 100$  MeV

We should answer following questions.

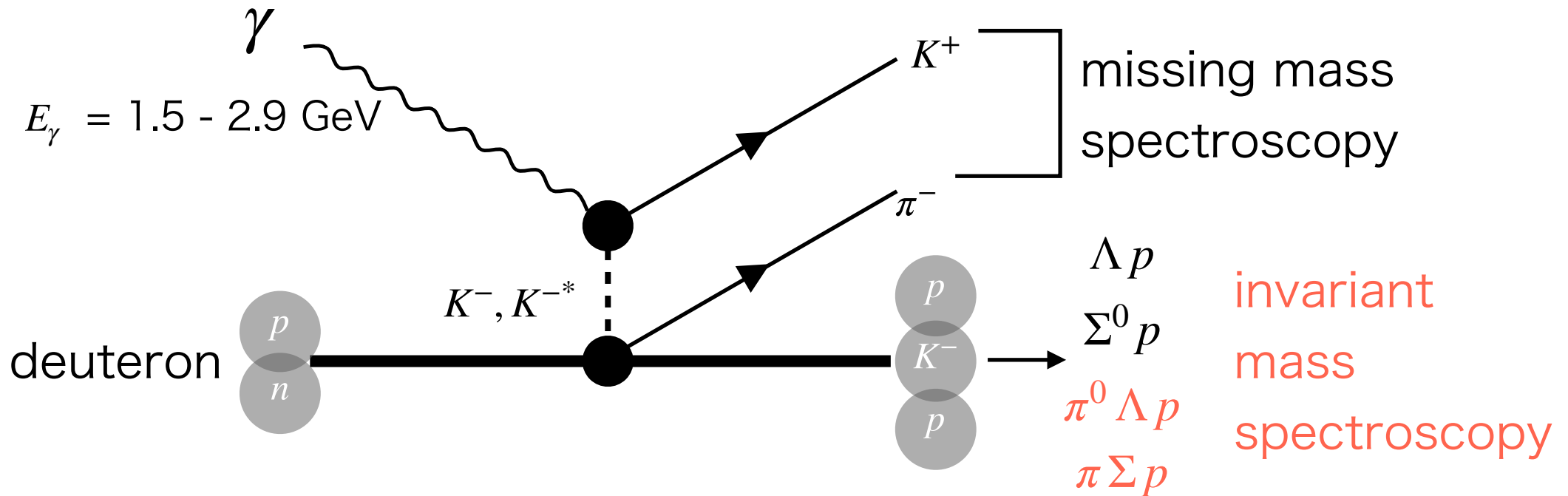
- K-pp bound state really exist?
- Binding energy is shallow? deep?
- Kaon is keeping its identity in the bound state?

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



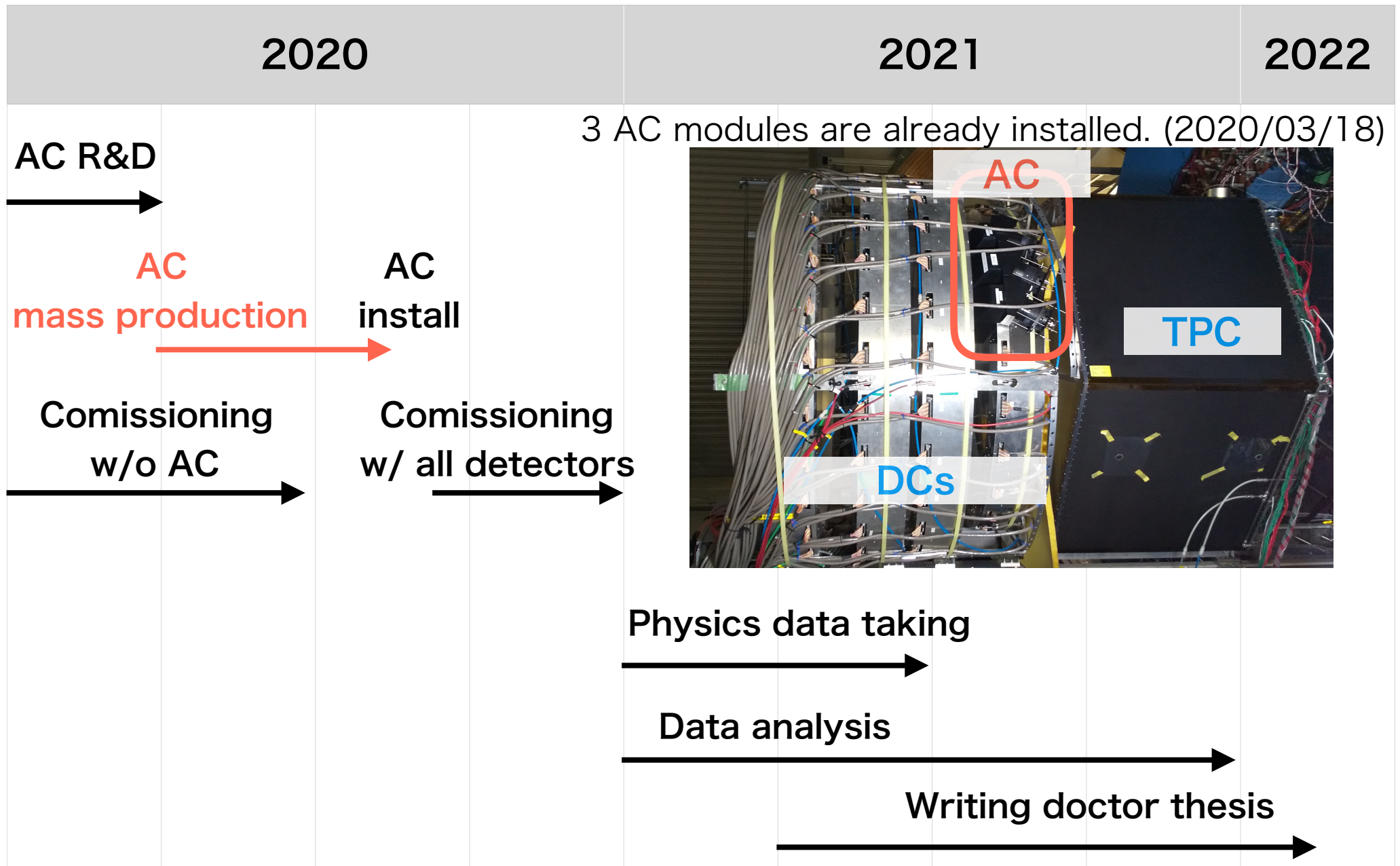
# Research plan

## 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 @DAFNE, INFN, Italy.
  - study about
    - precise measurement of  $K\bar{K}$  - 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
  - online plan : **monthly meeting**
    - new detector (Kaon monitor) ... improve S/N
    - analysis

