RPCs construction in SJTU

Lining Mao
On behalf of RPC lab
INPAC, Shanghai Jiao Tong University
06.24.2021
Design for 1m*1m*1.2mm gas gap

Standard one

Shifted one

2 pipes

4 pipes
Making process

- Gluing all the stuff on the first piece of glass

FR4 for the wall

Nylon spacers

PEEK for the gas channel

Press with aluminum block
Making process

- Adding more glue inside the spacer and then flip the chamber
- Sealing the chamber with silicon
What have been done or to be done

- 3 standard RPCs have been painted and tested, efficiency >95%
- In construction:
  3 standard and 3 (one done, one 80%, one 50%) shifted waiting for painting and testing.
Backup
Different set for the holes

A

B

C

D

E

The one with shifted spacers (E) looks the best.
Deformation (under electric field and gas pressure)

Maximum deformation: -0.271647%
Mean deformation (μm): -1.4665
Deviation (μm): 0.60193
|Dev/ave*100%|: 41.05%

Maximum deformation: -0.274918%
Mean deformation (μm): -1.6513
Deviation (μm): 0.60281
|Dev/ave*100%|: 36.50%

Maximum deformation: -0.247577%
Mean deformation (μm): -1.6513
Deviation (μm): 0.60281
|Dev/ave*100%|: 36.50%
Different set for the holes 'size

- Small holes closed to the edge are necessary.
- Better to be symmetric.
- Size of the holes still need some adjustments. But I think it’s trivial.
Pipes

Before

After