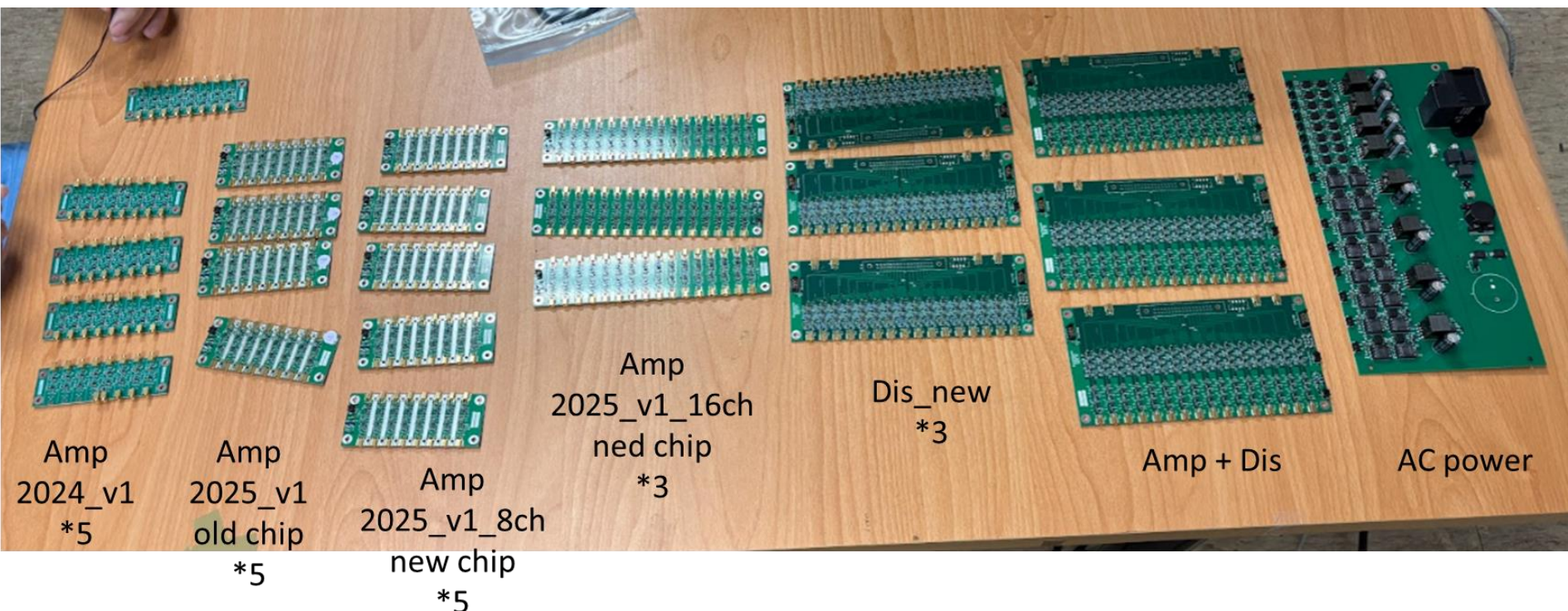# Weekly Meeting
RPC Test Beam @ 2025 July

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FEE Test

- Amp_2024_v1 * 5
- Amp_2025_v1_8ch_old * 5
- Amp_2025_v1_8ch_new* 3
- Amp_2025_v1_16ch_new* 3
- Amp box for 2025_v1 * 4

- Dis_2023_Mar * 5 : ok
- Dis_2025_v1 * 3 : ok
- Amp_2025_v1_new_plus_Dis_2025_v1 * 3

Test Beam Results (1)

- Log :
https://docs.google.com/spreadsheets/d/1YVedKd45KXM8YeEZp4K78OdeaaLgPB92XrtEL40c1hM/edit

- **old amp with old chip + old dis**
  - **Dis thres = 30mV, eff = 93%, time res. = 83 ps (reference)**

- **new amp with old chip + new dis.**
  - Dis thres = 60mV, eff = 71%, time res. = 114 ps
  - **Dis thres = 40mV, eff = 90%, time res. = 80 ps**
    (best performance among all the tests with old chip + new dis)
  - Dis thres = 20mV, eff = 98%, time res. = 112 ps (almost reaching pedestal)

- **new amp with new chip + new dis :** Dis thres = 60mV, eff = 25%, time res. = 83 ps
  - Dis thres = 40mV, eff = 50%, time res. = 86 ps
  - Dis thres = 20mV, eff = 82%, time res. = 109 ps (almost reaching pedestal)
  - Dis thes = 13mV, eff = 96%, time res. = 140 ps (good engh eff, but bad resolutuon, reaching pedestal)

Test Beam Results (2)

- There are some conclusions:
  - The old chip of amp on new board and old board gives similar performance. The design of new amp board should be okay.
  - Since "new amp with old chip + new dis" give consistent performance with "old amp with old chip + old dis", we conclude that the new discriminator works.
  - We could reach good efficiency with "new amp with new chip" but the reslution is bad. The reason is that the threshold is too low so we almost reach the pedestal.
  - side comments : we see oscillation/ring signals after the main pulse with new amp board no matter it is for old chip or new chip (for almost all the dark current).
  - the tot of new discriminator (HV = 14.5kV, threshold = 20mV) (zoom in 0-10ns on the right-hand side)
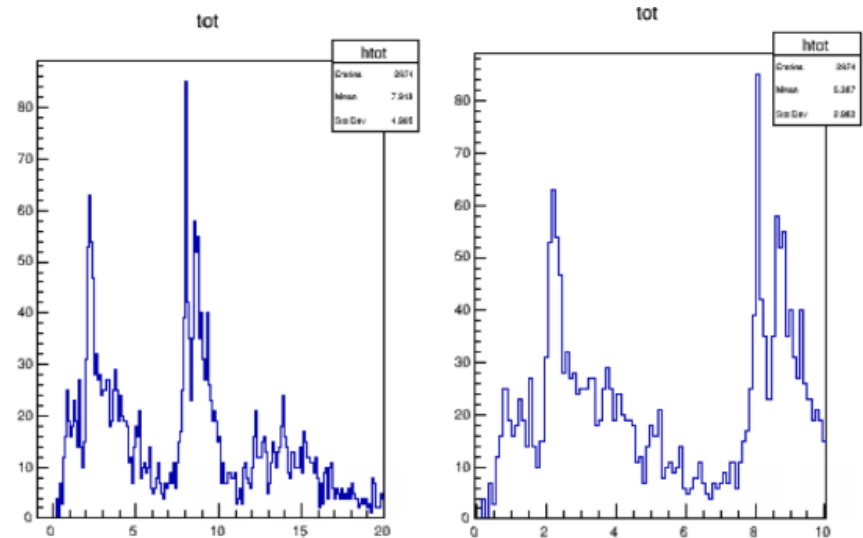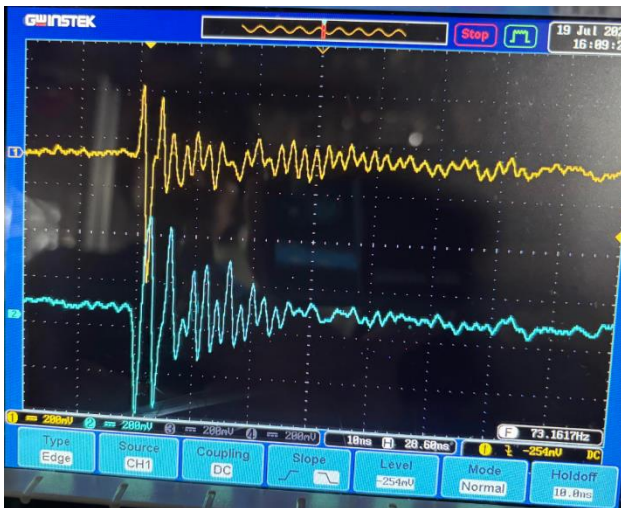
Summary and To Do

- Test new amp w/ local RPC to check the ring
- Prepare new control program for discriminator (set up threshold channel by channel)
- New RPC w/ different size of HV pad