INTT ladder module test with silicon sensor w/wo bias voltage

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Outline:

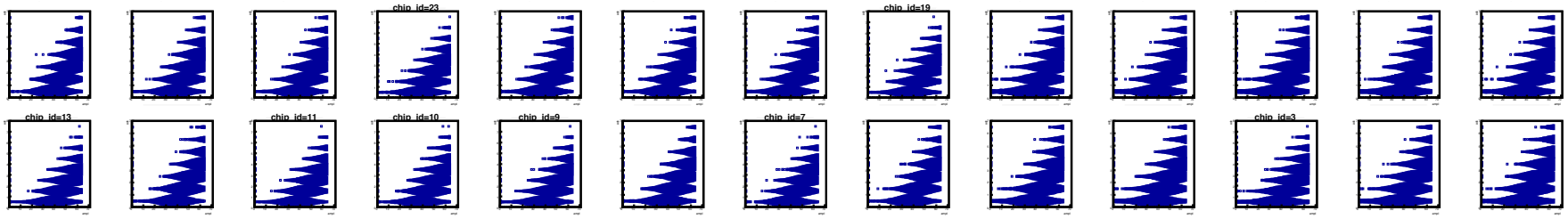
- Comparison results w/ wo bias voltage with different ladder modules with silicon sensor mounted.

- Conclusion

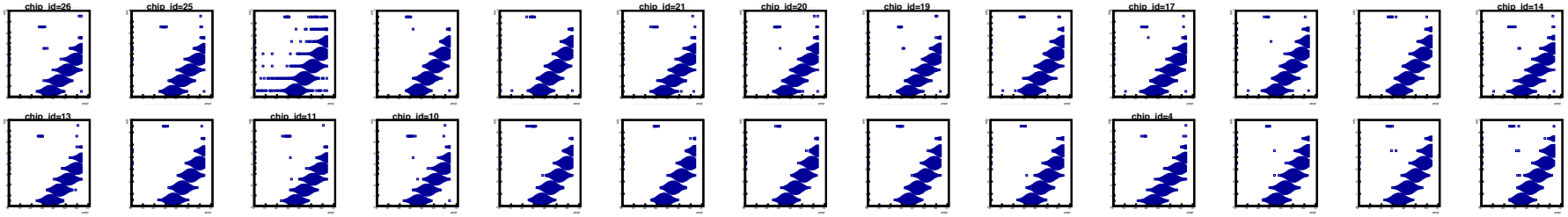
- INTT ladder 4
- 20 cm conversion cable 1
- Roc 9
- P400-P401

We make comparison between bias voltage = 0 V and =100 V

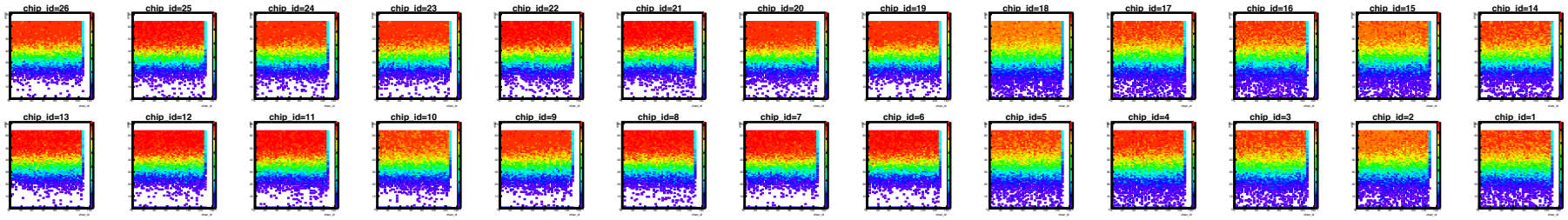
Bias voltage = 0 V



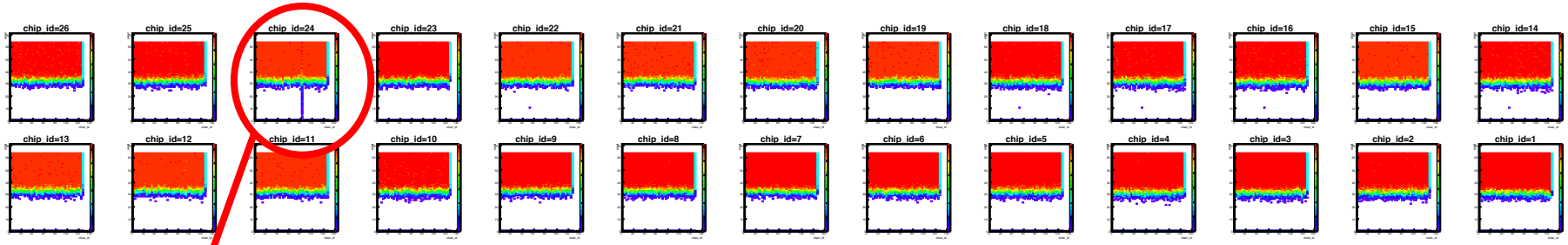
Bias voltage = 100 V, leakage current = 0.26 uA



Bias voltage = 0 V



Bias voltage = 100 V, leakage current = 0.26 uA



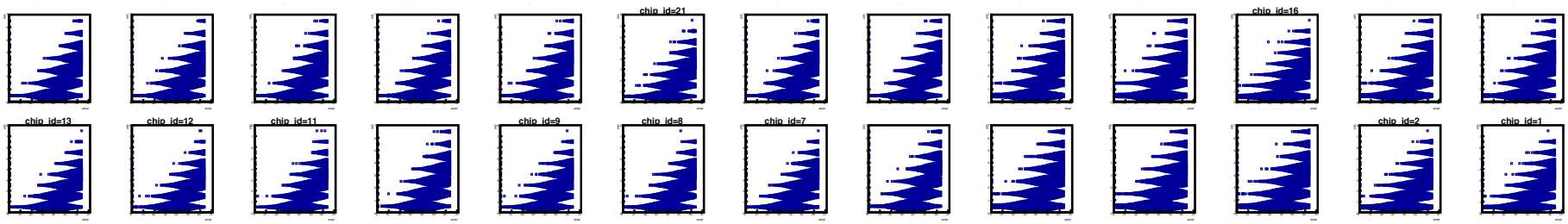
Id 24, channel ID range [80,85]: maybe noisy.

- INTT ladder 4
- 20 cm conversion cable 1
- Roc 9
- P400-P401

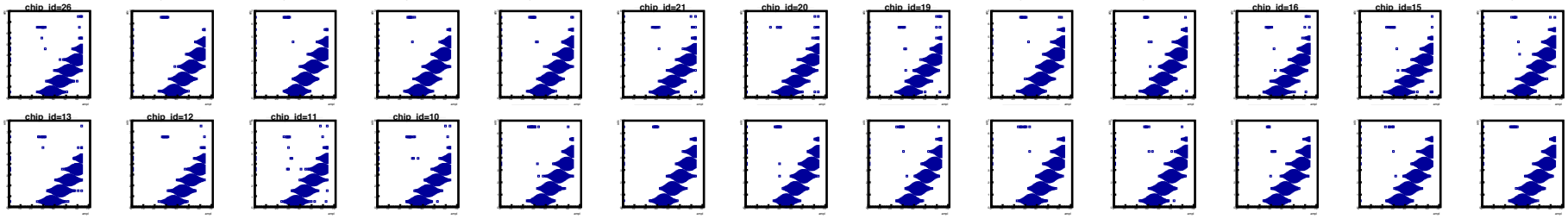
- INTT ladder 1
- 20 cm conversion cable 1
- Roc 9
- P400-P401

We make comparison between bias voltage = 0 V and =100 V

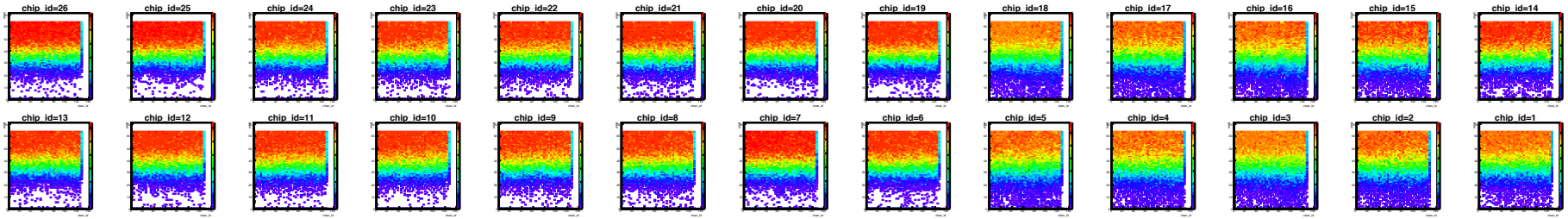
Bias voltage = 0 V



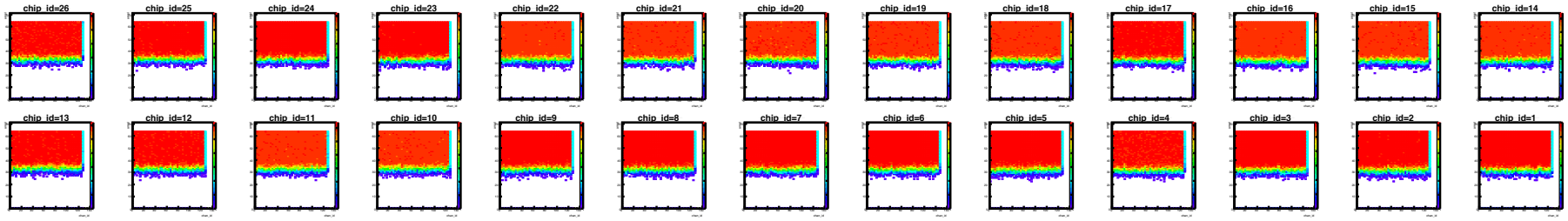
Bias voltage = 100 V, leakage current = 0.48 uA



Bias voltage = 0 V



Bias voltage = 100 V, leakage current = 0.48 uA

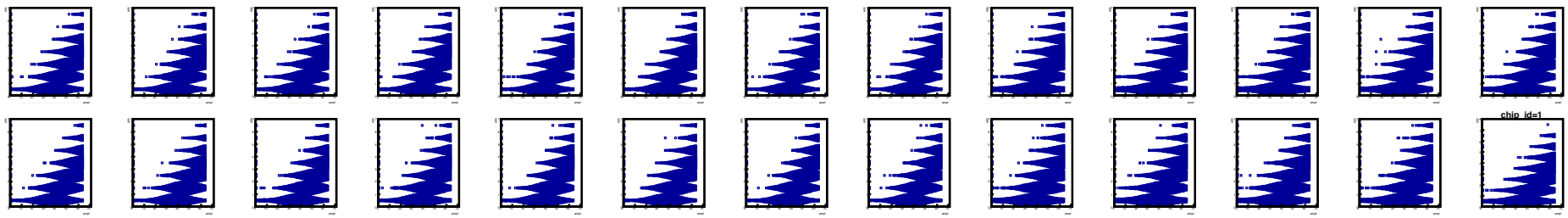


- INTT ladder 1
- 20 cm conversion cable 1
- Roc 9
- P400-P401

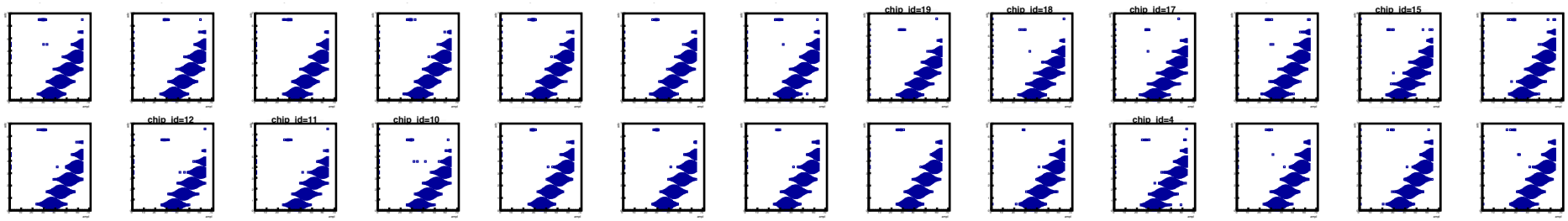
- INTT ladder 3
- 20 cm conversion cable 1
- Roc 9
- P400-P401

We make comparison between bias voltage = 0 V and =100 V

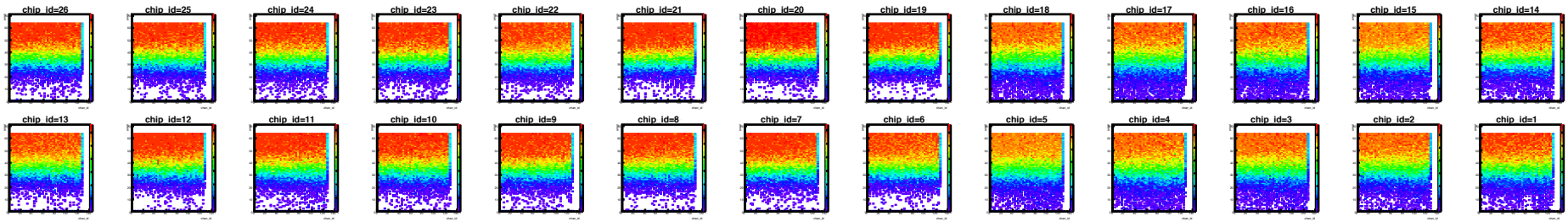
Bias voltage = 0 V



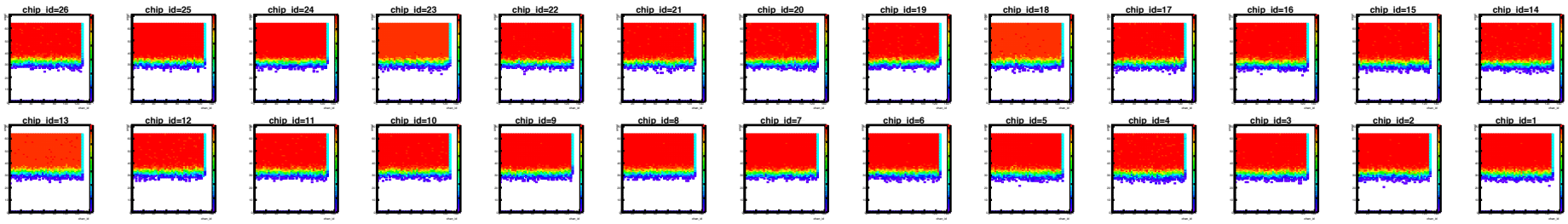
Bias voltage = 100 V, leakage current = 0.43 uA



Bias voltage = 0 V



Bias voltage = 100 V, leakage current = 0.43 uA

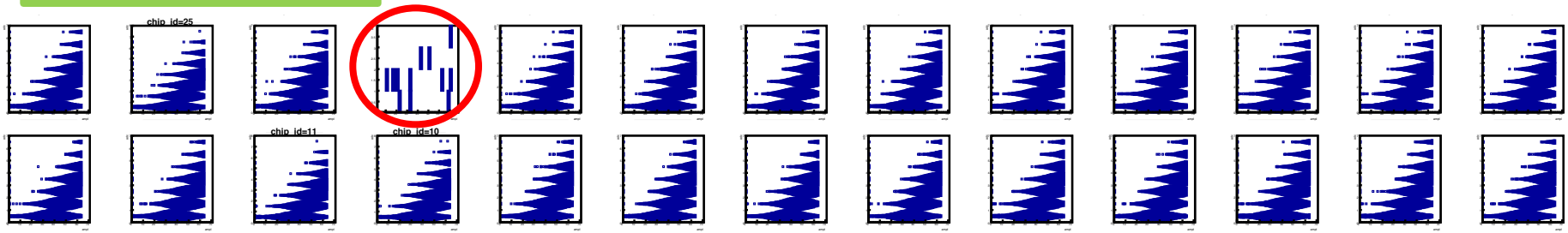


- INTT ladder 3
- 20 cm conversion cable 1
- Roc 9
- P400-P401

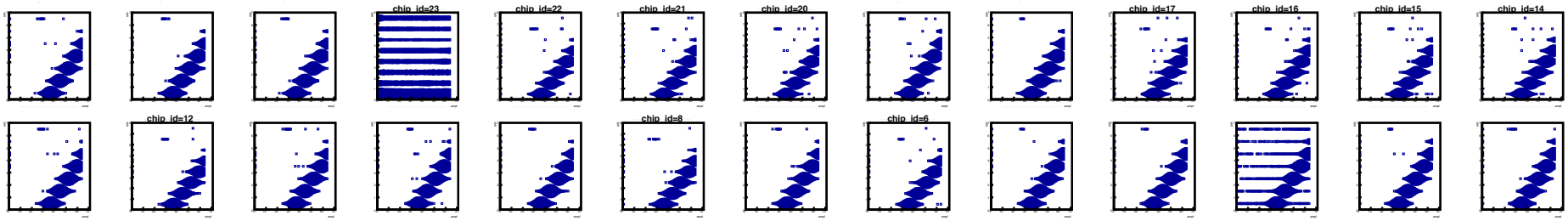
- INTT ladder 2
- 20 cm conversion cable 1
- Roc 9
- P400-P401

We make comparison between bias voltage = 0 V and =100 V

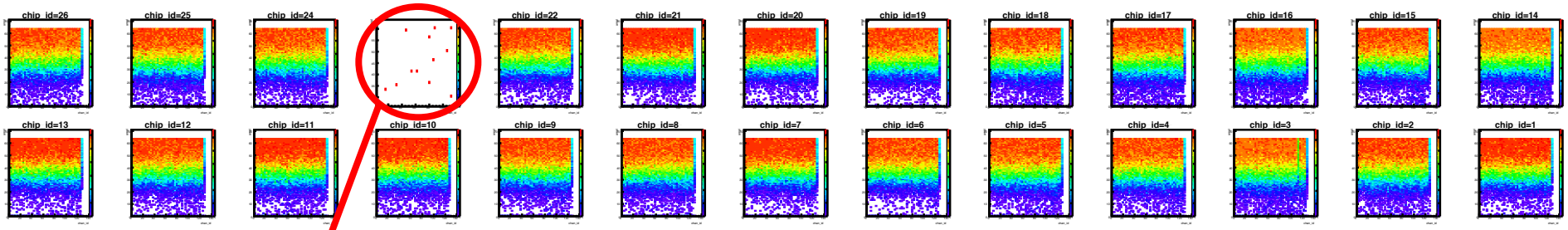
Bias voltage = 0 V



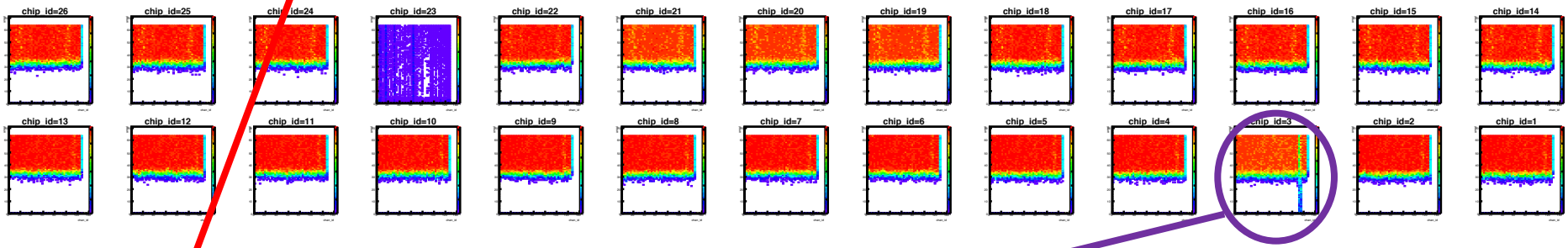
Bias voltage = 100 V, leakage current = 2.4 uA



Bias voltage = 0 V



Bias voltage = 100 V, leakage current = 2.4 uA



Chip 23 has been fixed, so the conclusion is that there is some problem in the HDI.

Chip 3, channel ID: [110,120] is noisy.

- INTT ladder 2
- 20 cm conversion cable 1
- Roc 9
- P400-P401

Conclusion:

- These calibration data work OK.

- Compare bias voltage 0 V and bias voltage 100 V:
  - The background is indeed suppressed by applying bias voltage.
  - wire bonding of silicon sensor works fine.

- All ladders are ready for the beam test.
  - Ladder 1, 3 and 4 is ready.
  - Ladder 2: there should be something wrong in HDI.