Silicon Sensor Ranking
status

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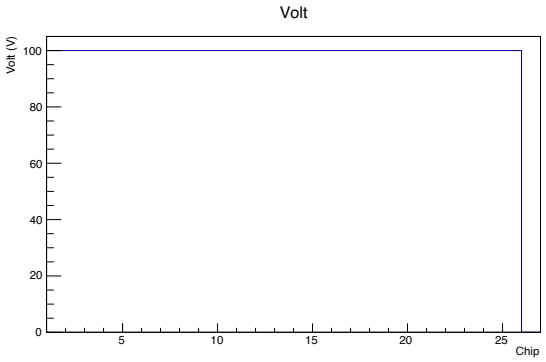
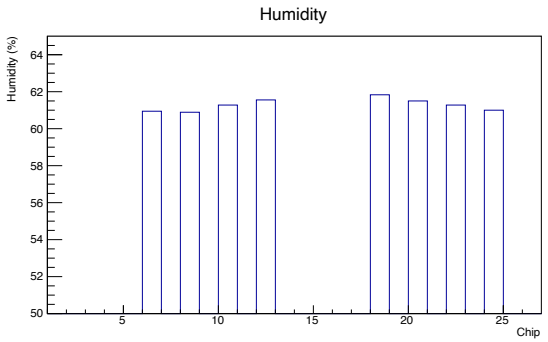
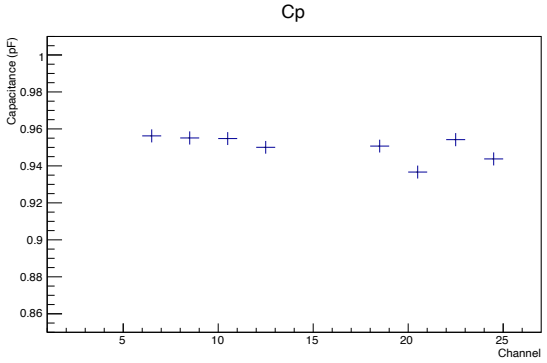
Introduction

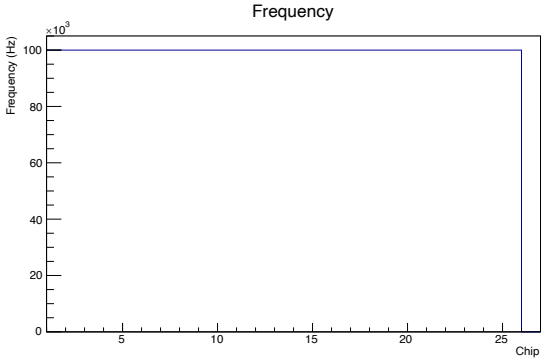
- We need to establish a figure of merits based on which we can rank silicon sensors
- That means we need a requirements to determine:
  - Whether the sensor is GOOD or not
  - Whether the sensor is BAD or not
  - Or neither of those (further investigation needed)
- For first look we have set of quantities from root tree provided by Kai-Yu:
    - 18 sensors
    - Each sensor has 26 chips, but only 8 chips has measurement

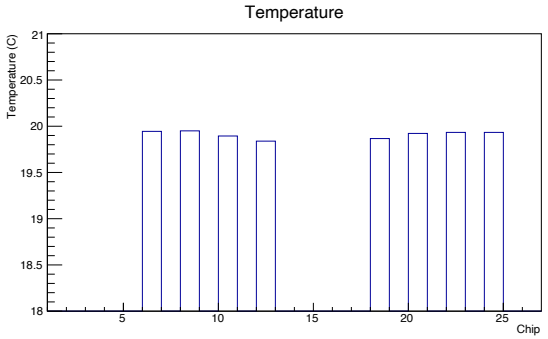
Per-Sensor average values







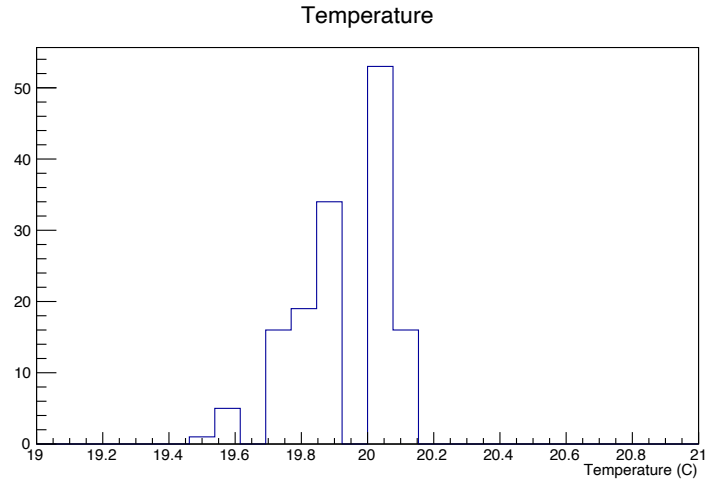


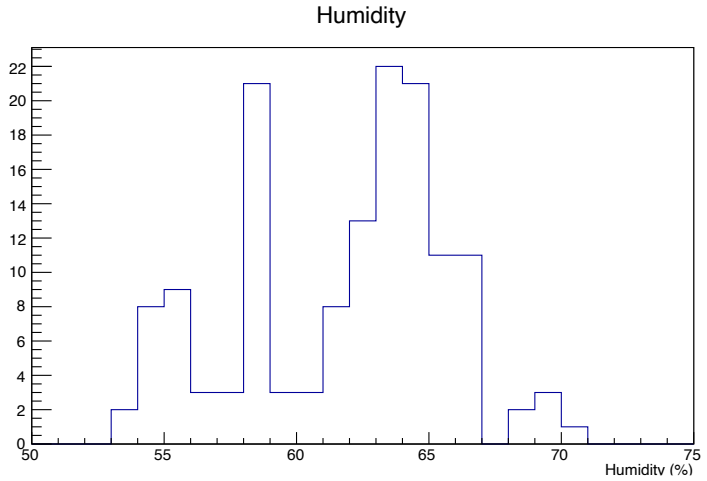


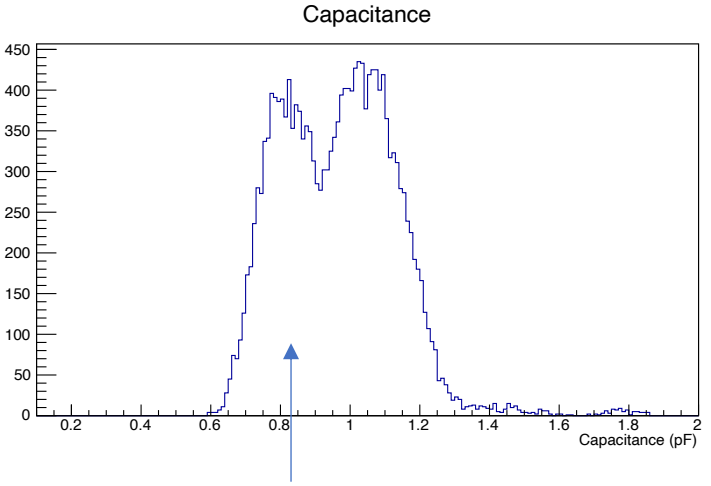
Constant

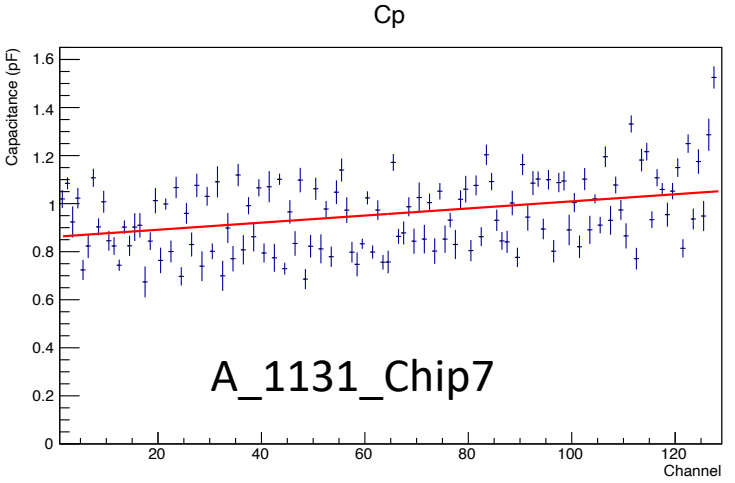
Fluctuations

Total distributions









This should be single Gaussian

First ideas for ranking

- We have various measured quantities with different Gaussian width
- Volt & Frequency: constant
  - Any deviation from expected value would require investigation
- Temperature & Humidity - small fluctuations
  - One chip 3sigma deviation from the mean value -> further investigation (26 chips per sensor)
  - Two chips 3sigma deviation -> bad sensor
- Capacitance
  - 2% of channels 3sigma deviation -> Bad sensor