Silicon Sensor Ranking
status

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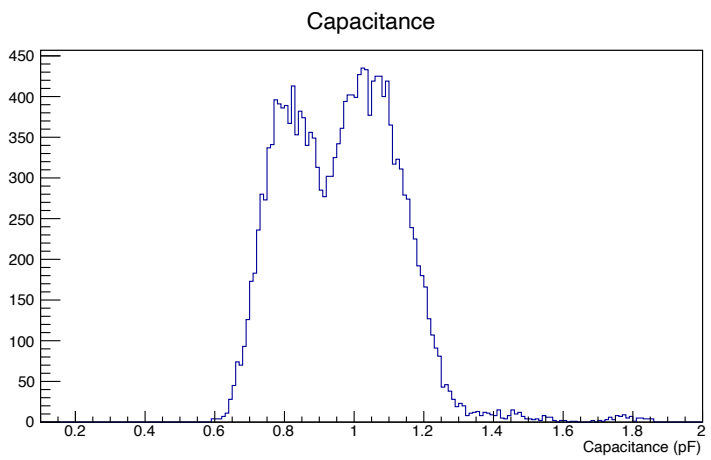
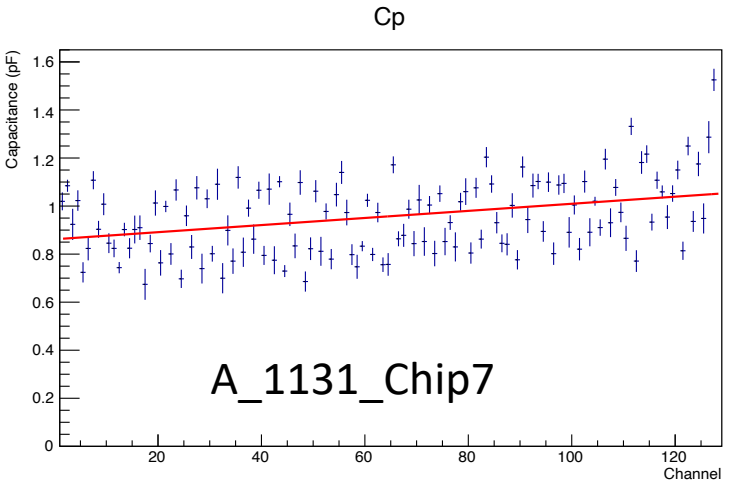
Introduction

- 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

Capacitance RAW distribution

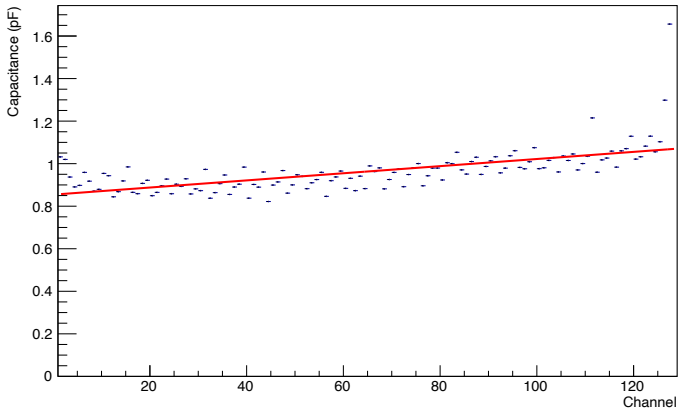




Correction needed

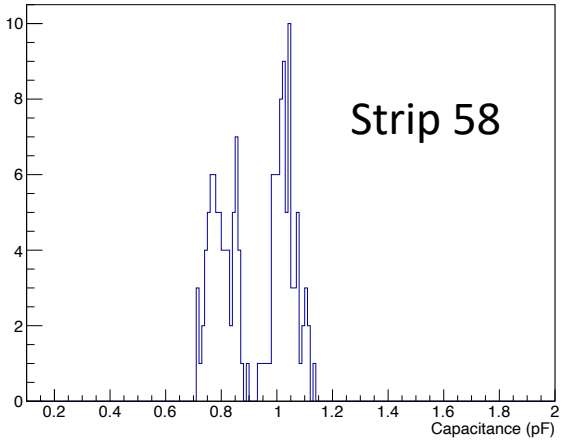
Capacitance RAW distribution

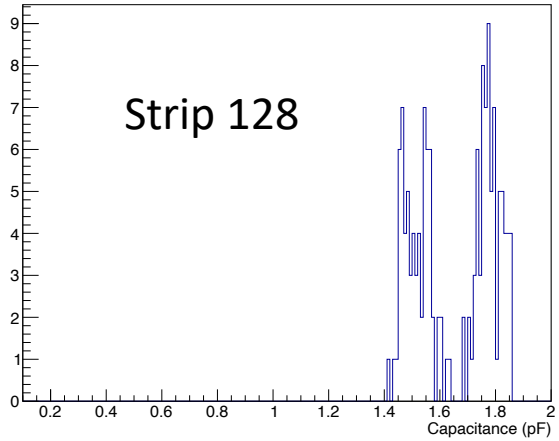
Average capacitance of each stip



Plan: Shift each strip value so all all strip distributions have same mean

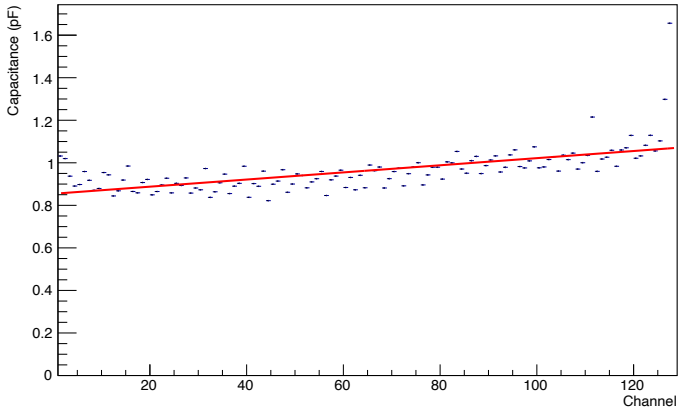
Strips 112, 127, 128 shifted manually



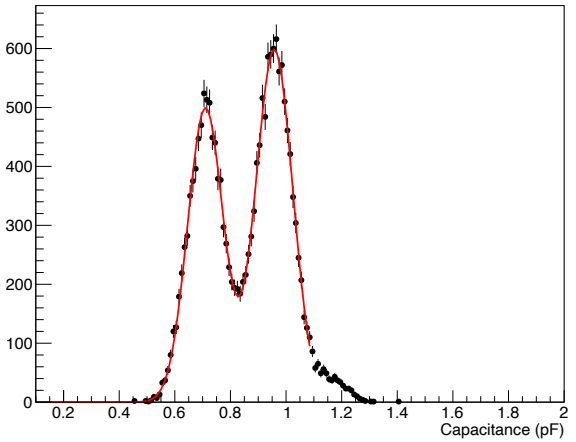


Capacitance distribution – linear shift

Average capacitance of each stip



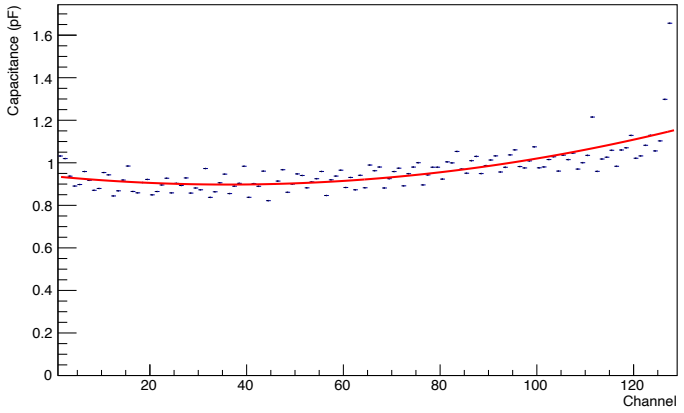
Double Gaussian fit



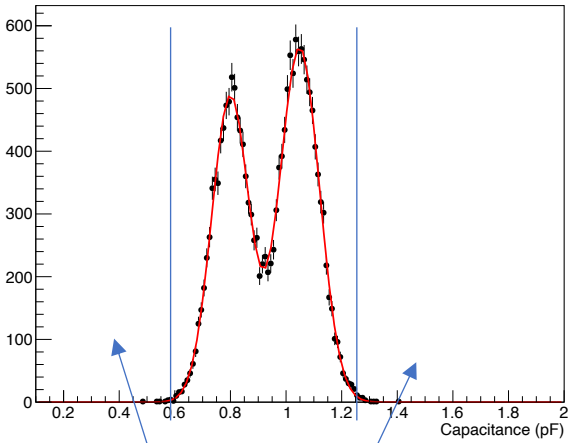
Non Gaussian tail

Capacitance distribution – quadratic shift

Average capacitance of each stip



Double Gaussian – good fit



BAD strip

If ((Cp – 1stMean < -3sigma) || (Cp – 2stMean > 3sigma)) BAD strip

First ideas for ranking

- Double Gaussian fit of the shifted capacitance
- Shift based on 2nd order polynomial fit
- Lack of the method: what about the values between the two means?
- Average values of a strip do not converge – should we shift each strip manually?