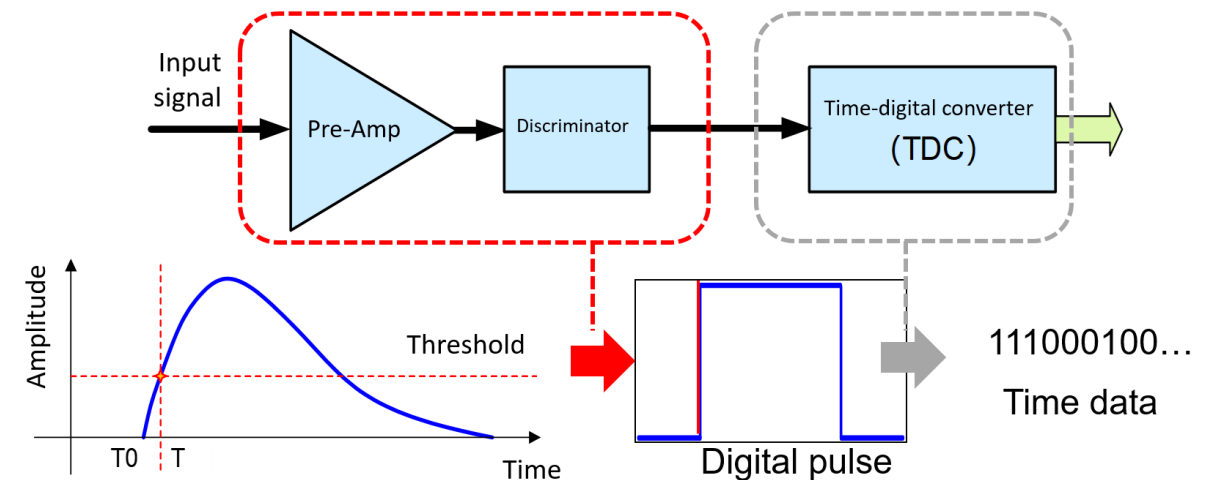
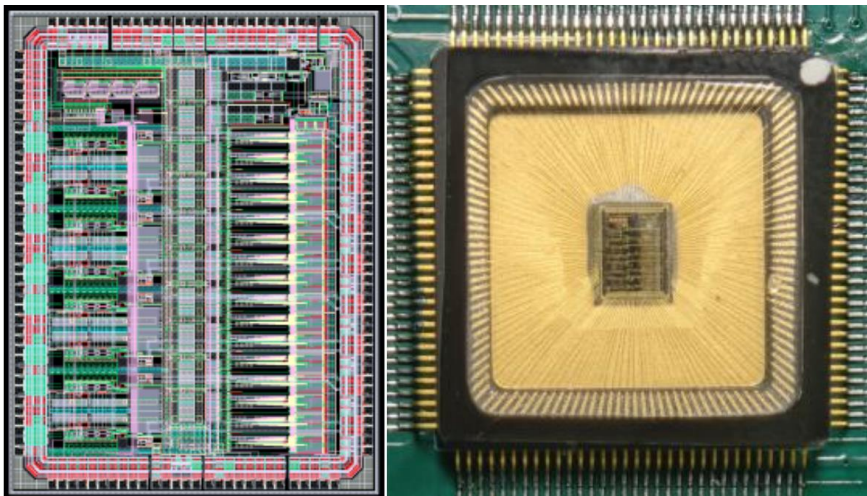
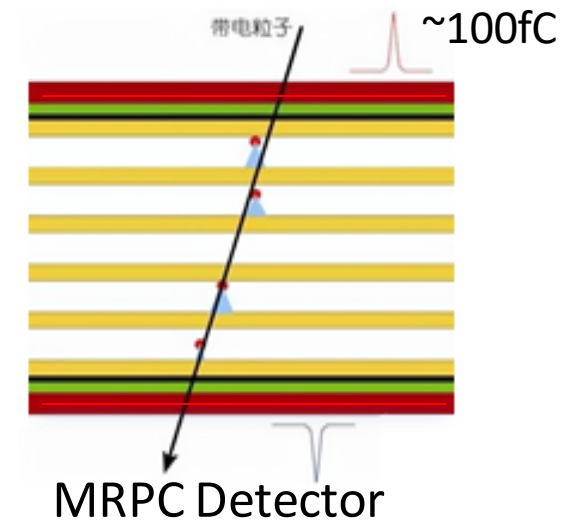


#177: A 10-ps Resolution Direct-Digitizing Time Measurement ASIC for Fast Detectors

- Challenges of TOF front-end electronics:
 - Weak and fast signals
 - High-precision front-end and TDC
 - Input impedance mismatch (@ large dynamic range)
 - High-density MRPC readout
- Our solution: direct-digitizing time-measurement ASIC
 - 180 nm CMOS
 - AFE + TDC, 8channels



#177: A 10-ps Resolution Direct-Digitizing Time Measurement ASIC for Fast Detectors

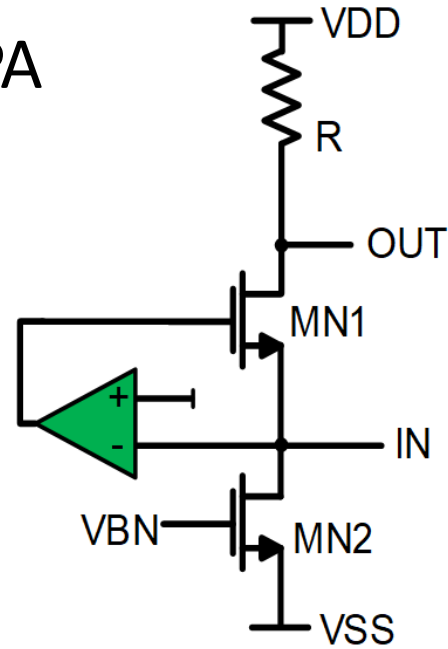
- Core circuit: Regulated Cascode PA

- Lower input impedance

- $R_{RGC} = \frac{R_{CG}}{A}$

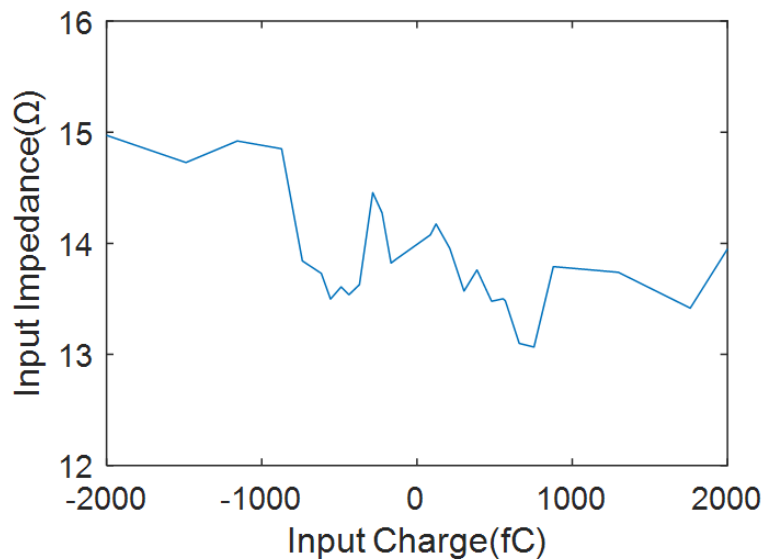
- Higher bandwidth

- Stable voltage at the input point



- Preliminary test results:

- Stable Impedance



- <10 ps Precision

