

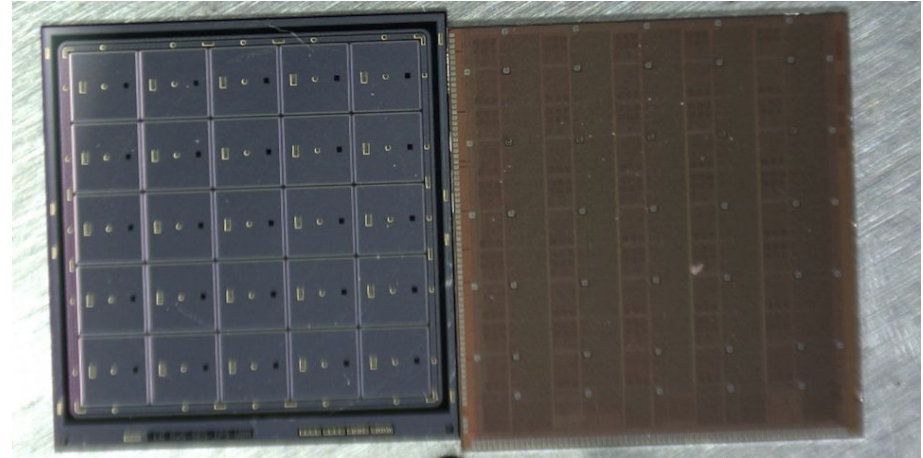
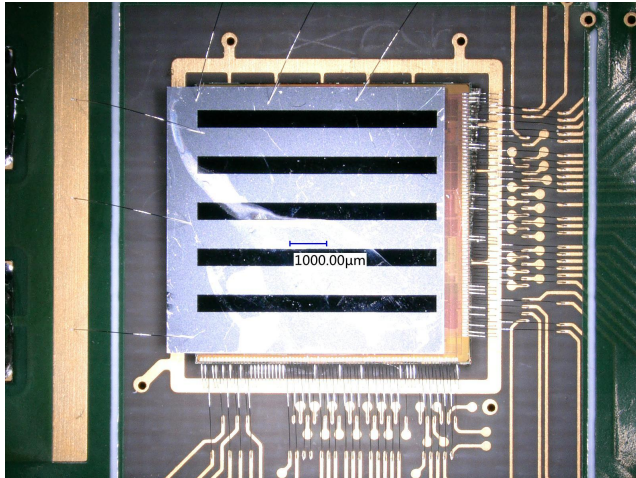
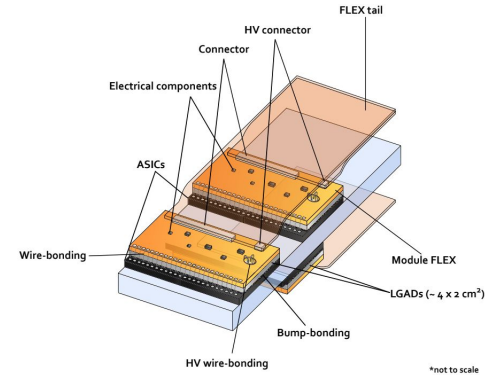
High Granularity Time Detector Hybridization and TestBench Measurement @ IHEP

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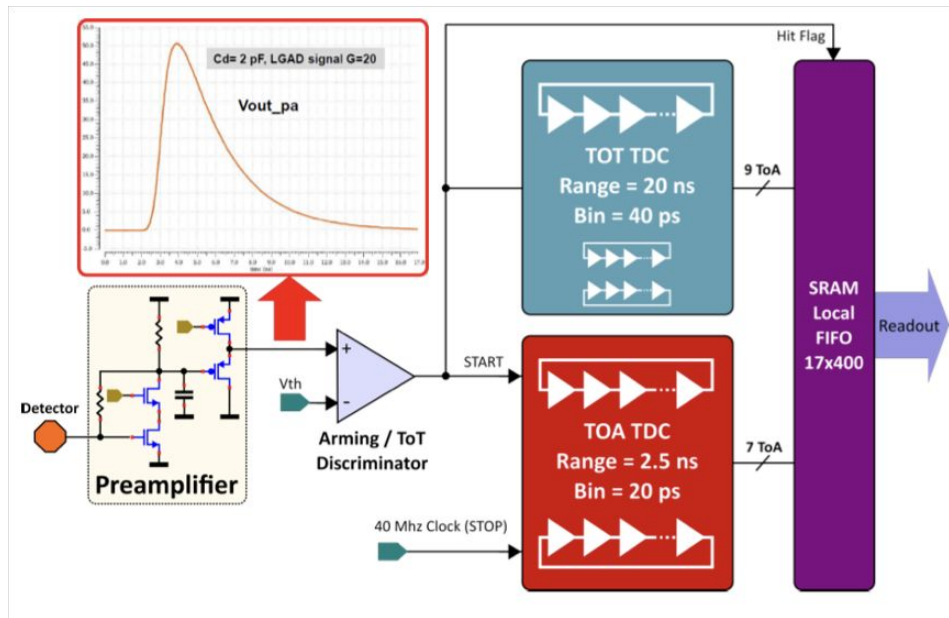
Introduction

Module is the basic element of the HGTD, consisting of a LGAD sensor and a Altiroc asic readout. They (bare module) are bump bonded together using hybridization.





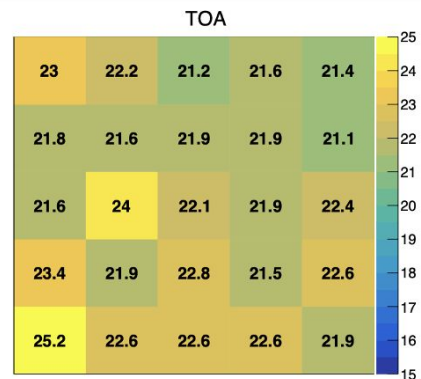
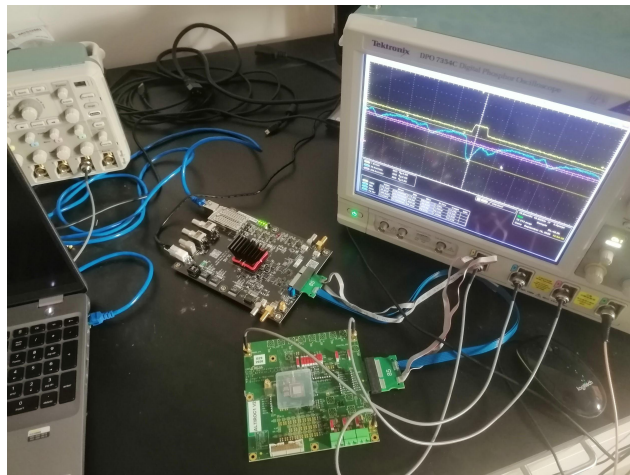
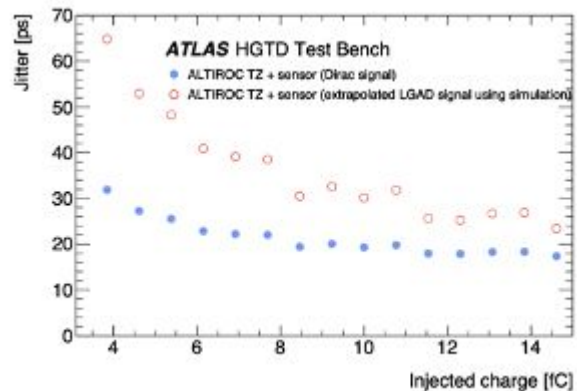
- Dedicated ASIC for digitizing and readout
- Preamplifier to increase collected charge pulse
 - Trans-impedance preamplifier
 - Voltage preamplifier
- Two TDCs to convert analog signal
 - One for TOA, resolution $\sim 10\text{ps}$
 - One for TOT



Altiroc test



Using local test setup at IHEP
“Out-of-data” setup for mini-module (5x5) test
Functionalities as expected
Average jitter below 30 ps



Future plan



Start testing of full size prototype (Altiroc2)
Plan to do wafer-level test (Quality Control)
Altiroc2 wafers have received, collaborate with companies

