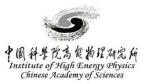
High Granularity Time Detector Hybridization and TestBench Measurement @ IHEP

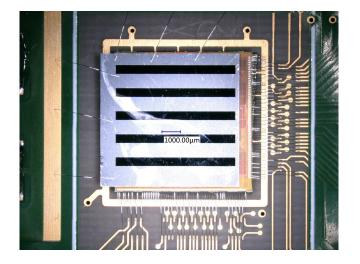
Xuan YANG Institute of High Energy Physics (CAS)

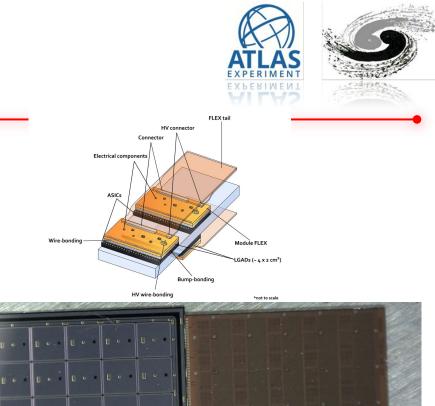




Introduction

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.

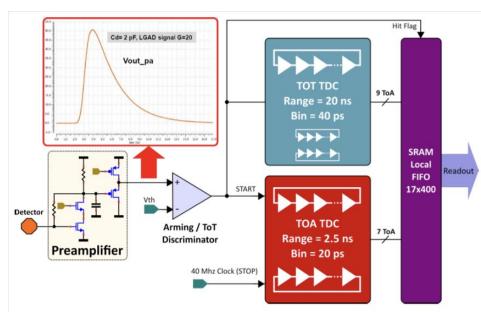






Altiroc

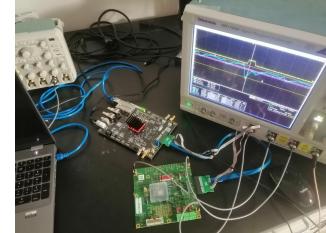
- Dedicated ASIC for digitizing and readout
- Preamplifier to increase collected charge pulse
 - Trans-impedance preamplifier
 - Voltage preamplifier
- Two TDCs to convert analog signal
 - One for TOA, resolution ~ 10ps
 - One for TOT



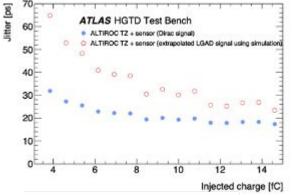


Using local test setup at IHEP "Out-of-data" setup for mini-module (5x5) test Functionalities as expected Average jitter below 30 ps









	ТОА			25
22.2	21.2	21.6	21.4	-24
				-23
21.6	21.9	21.9	21.1	-22
21.6 24	22.1	21.9	22.4	-20
				-19
21.9	22.8	21.5	22.6	-18
25.2 22.6				-17
22.6	22.6	22.6	21.9	16
	21.6 24	22.2 21.2 21.6 21.9 24 22.1 21.9 22.8	22.2 21.2 21.6 21.6 21.9 21.9 24 22.1 21.9 21.9 22.8 21.5	22.2 21.2 21.6 21.4 21.6 21.9 21.9 21.1 24 22.1 21.9 22.4 21.9 22.8 21.5 22.6

Future plan



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



