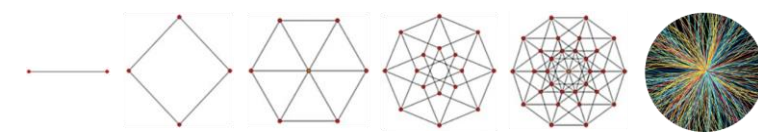


Work Package 7.3 4D and 5D Techniques

Sophie Baron, Marek Idzik

Work Package overview



7.3a:

High performance TDC and ADC blocks at ultra-low power

Project Lead
Marek Idzik, AGH Krakow

Project Description:

develop ultra-low power, area-efficient, fast ADCs and precise TDCs as two indispensable blocks of a SoC-type readout ASIC.

Also other circuits directly interacting with them, such as analog front-ends, discriminators, fully differential amplifiers or serializers&data transmitters may be part of this project.

Contributors:

- ES: ICCUB
- FR: CEA IRFU, CPPM, IP2I, OMEGA
- KR: DGIST
- PL: AGH
- US: SLAC

7.3b1:

Strategies for characterizing and calibrating sources impacting time measurements

Project co-Lead

Louis d'Eramo, IN2P3 LPC,
Giacomo Zecchinelli, Boston University

Project Description:

- study generic data-driven calibration strategies for this purpose. This includes:
- Developing a coherent simulation of all the factors impacting the time measurement;
 - Constructing a set of figures of merit to assess the calibration;
 - Studying the impact of the different factors and their mitigation on test facilities
 - Implementing calibration chain

Contributors:

- Boston University
- CERN
- CNRS-IN2P3, LPCA
- New contributors interested in joining
 - ANL, US
 - Radboud University, NL

7.3b2:

Timing distribution techniques

Project Lead

Sophie Baron, CERN.
Deputy Javier Galindo, Itainnova

Project Description:

- study and propose strategies to optimize and assess ultimate precision and determinism of timing distribution systems for future detectors:
- Assess phase stability and determinism of COTS and Systems used in HEP
 - Develop FPGA-generic solutions to enforce this stability

Contributors:

- CH: CERN
- FR: IN2P3 CPPM, IJCLab
- NL: Nikhef
- SP: Ciemat, CNM, ICFA, Itainnova
- UK: Bristol
- US: University of Minnesota