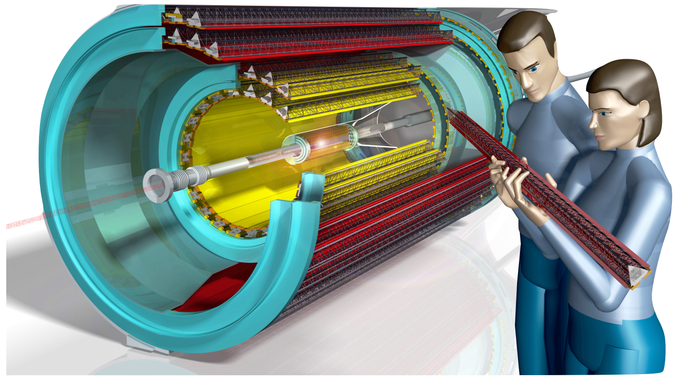
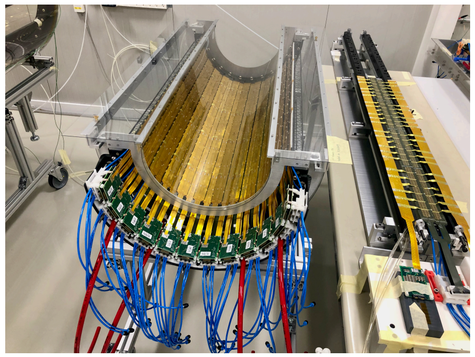
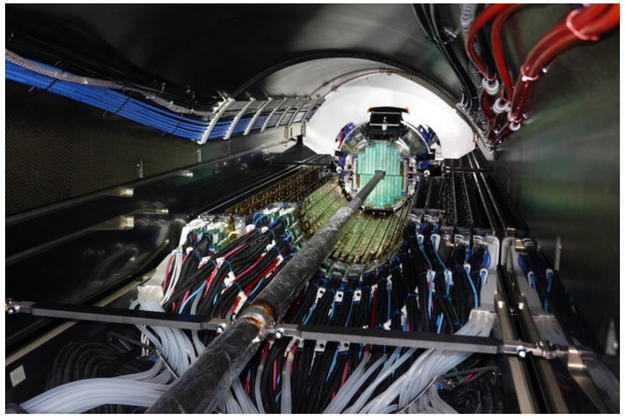
ITS 2, 2021-2030

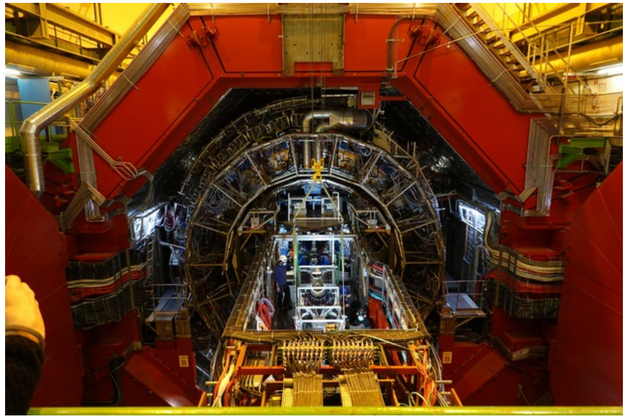
Change of technology: new tracker based on monolithic CMOS sensors!

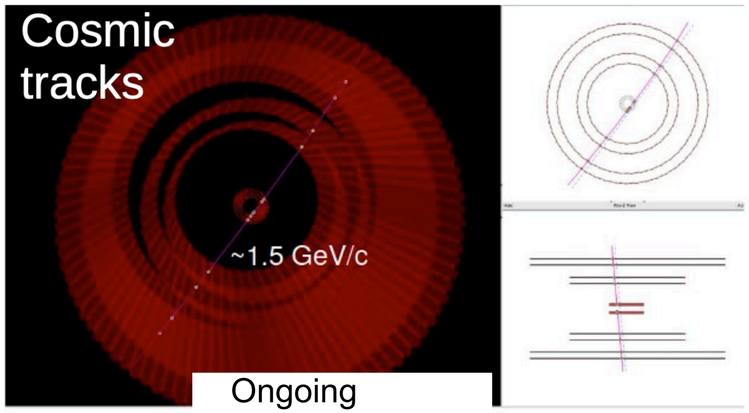




24-10-2019





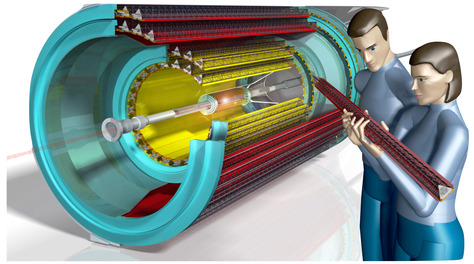


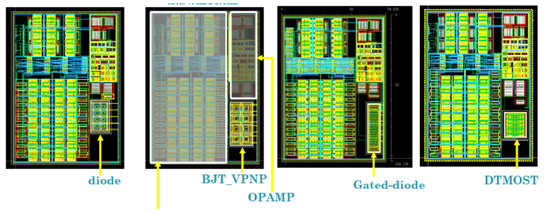
16-03-2021

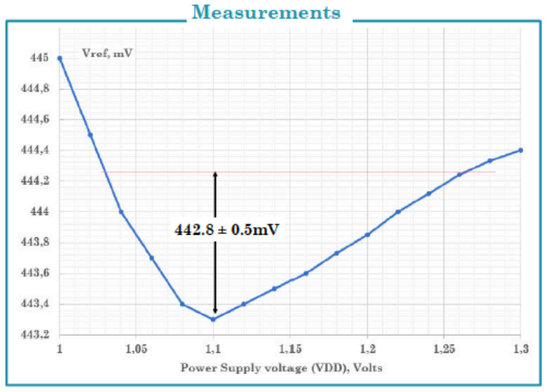
ITS 3, 2025-2030

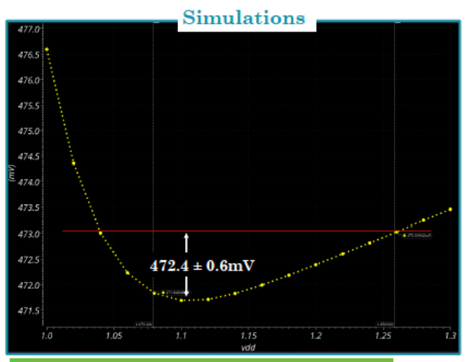
Chip size is traditionally limited by CMOS manufacturing

- New option: stitching and bending
  replace innermost 3 layers ITS 2





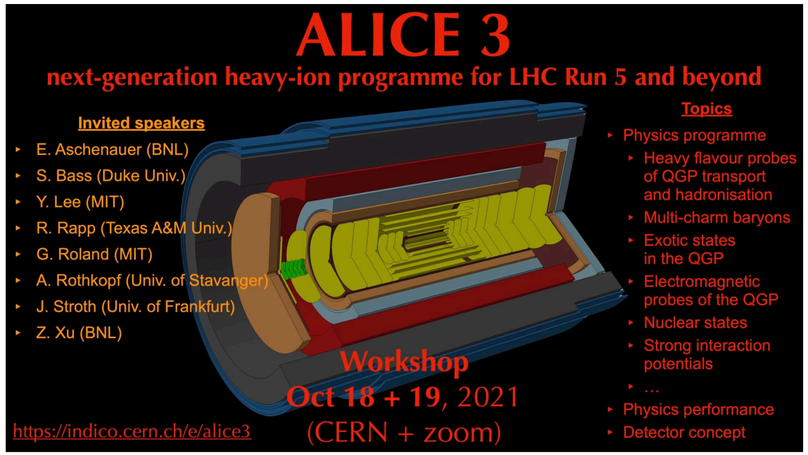




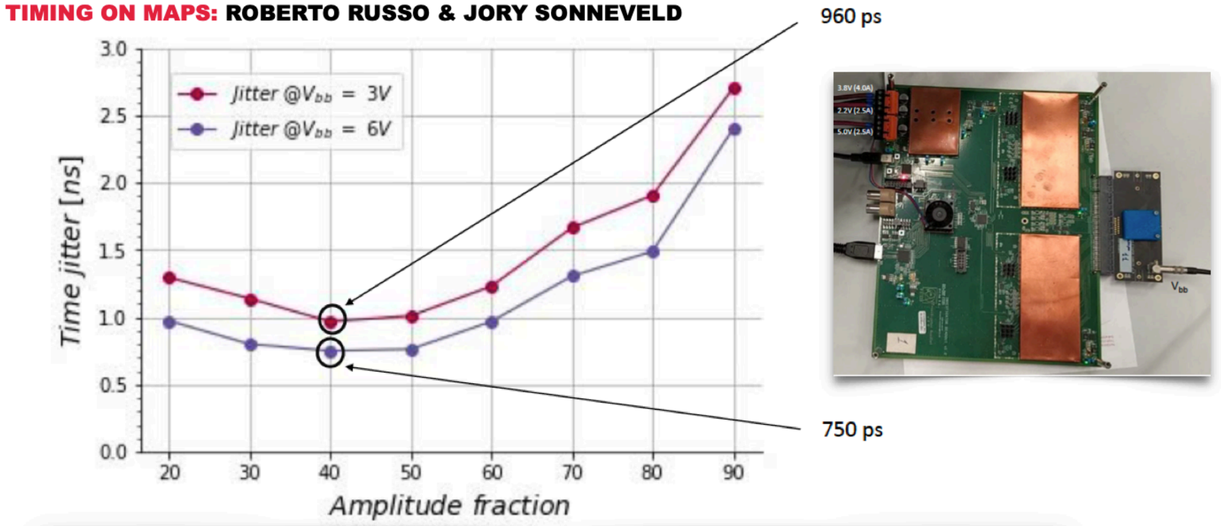
THE STRUCTURES WE DESIGNED ARE ALIVE

ALICE 3, 2030-

LOI currently in last editing stage

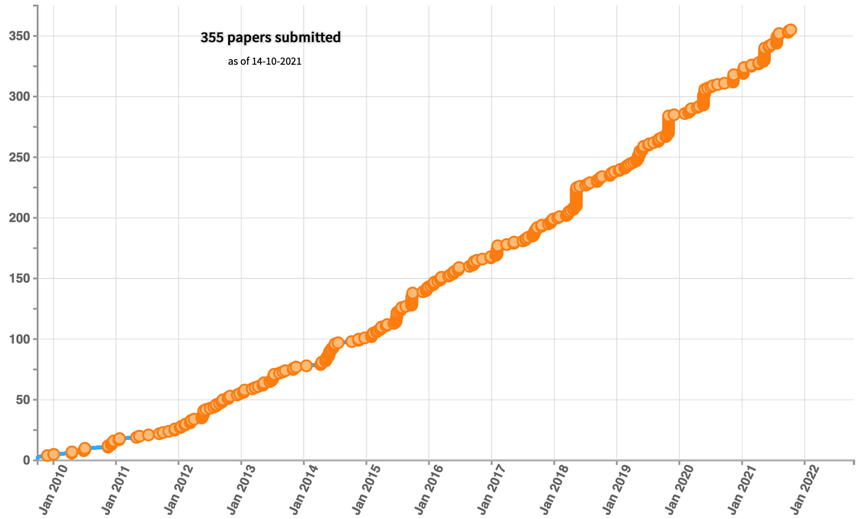


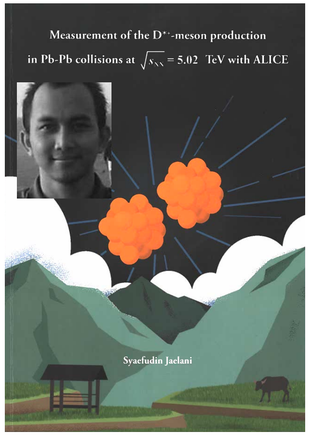
TIMING ON MAPS: ROBERTO RUSSO & JORY SONNEVELD

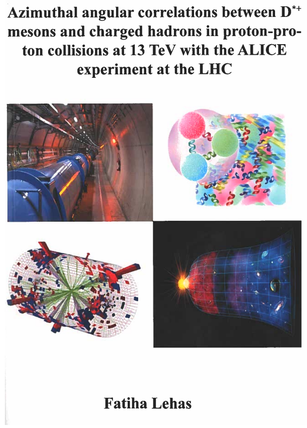


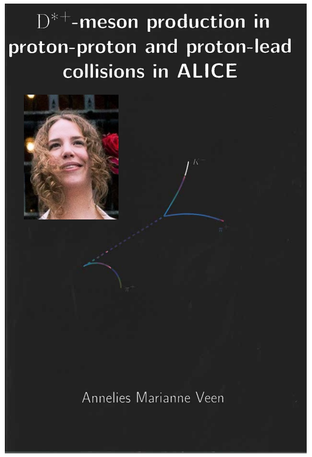
ALICE 2021

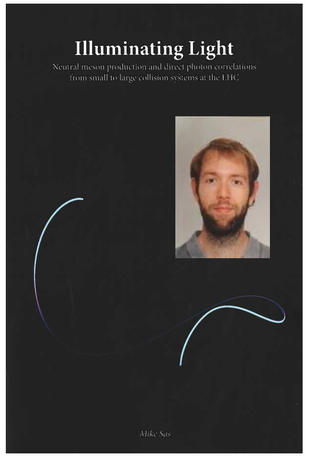
ALICE Physics Papers Timeline











Luuk Vermunt
Hadronisation of Heavy Quarks

Dimitra Andreou
Detector characterization & Λ_B measurements ..

EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH

ALICE

CERN

CERN-EP-2021-XXX
27 May 2021

The ALICE experiment - A journey through QCD

ALICE Collaboration

Abstract

The ALICE experiment was proposed in 1995, to study strongly interacting matter at extreme energy densities via a systematic and comprehensive study of nuclear collisions at the LHC. Its physics programme initially focused on the determination of the properties of the Quark-Gluon Plasma, a deconfined state of quarks and gluons and was extended along the years, covering a diverse ensemble of QCD-related observables. The experiment has collected data for Pb–Pb, Xe–Xe, p–Pb and pp collisions in the multi-TeV energy range, during the Run 1 and Run 2 data taking periods at the LHC (2009-2018). The aim of this review paper is to gather and summarise a selection of ALICE physics results and also to discuss their implications on the current understanding of the macroscopic and microscopic properties of the strongly interacting matter at the highest possible temperature reached in the laboratory. It will be shown that it is possible to have a quantitative description of the intensive properties of the QGP and, at the same time, analyse how various features, commonly ascribed to QGP formation, can be detected for a wide range of interacting system sizes. Prospects for future developments of this field of investigation, as they will be accessible to ALICE in the next and mid-term future, will also briefly be touched upon.

200 page summary paper of ALICE results and their implications