

PID in ALICE



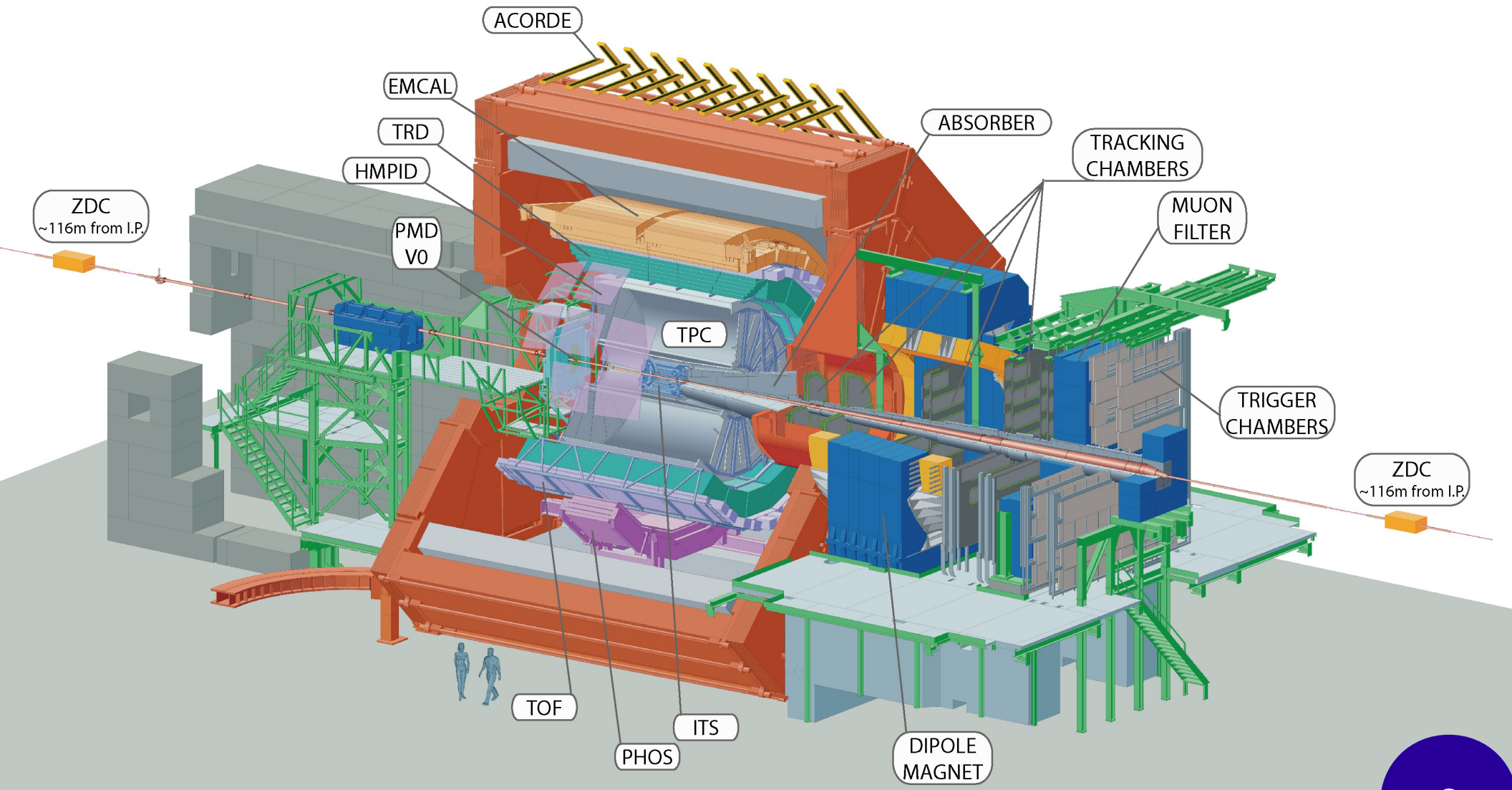
WE-Heraeus Physics School on
Diffractive and Electromagnetic
Processes at High Energies

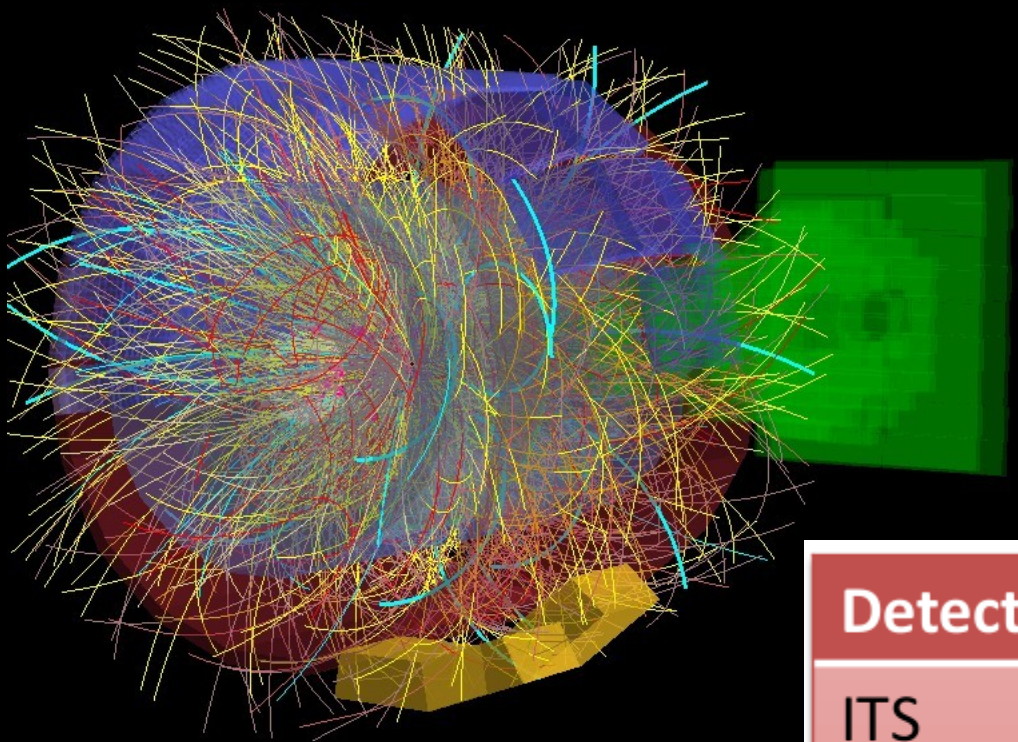
17-21 August 2015

Bad Honnef, Germany

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Pontificia Universidad Católica del
Perú

ALICE detectors

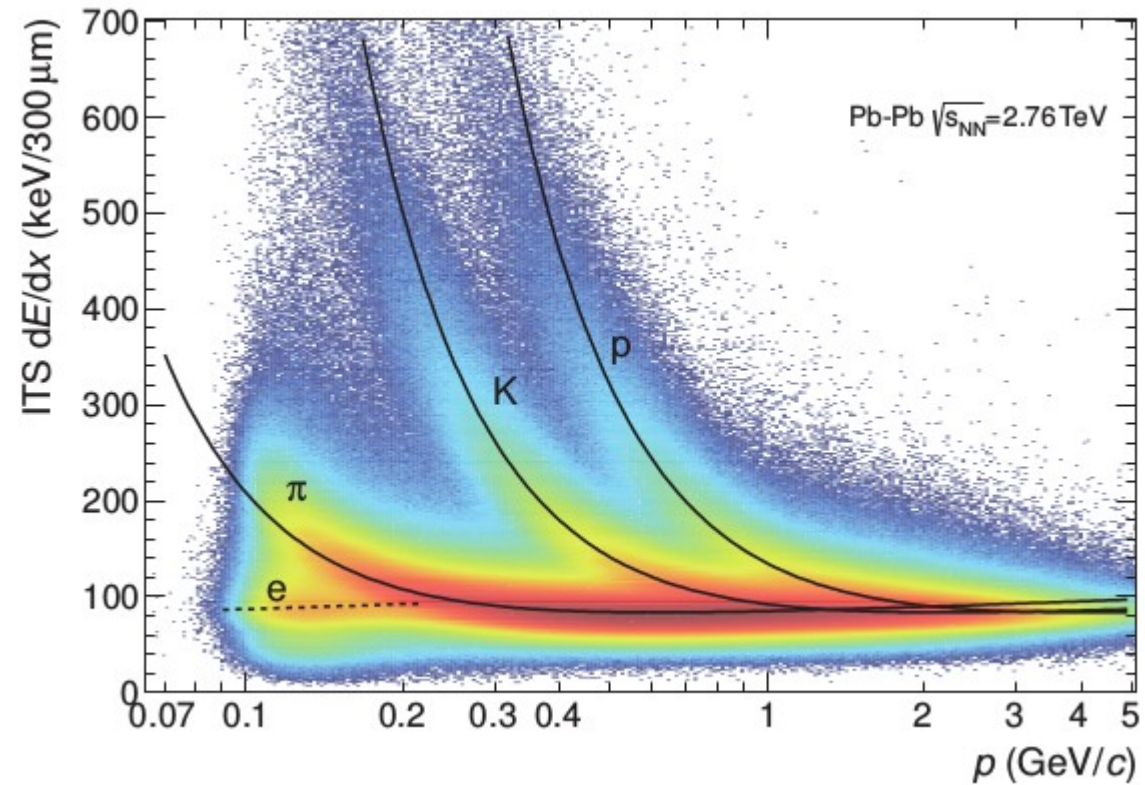
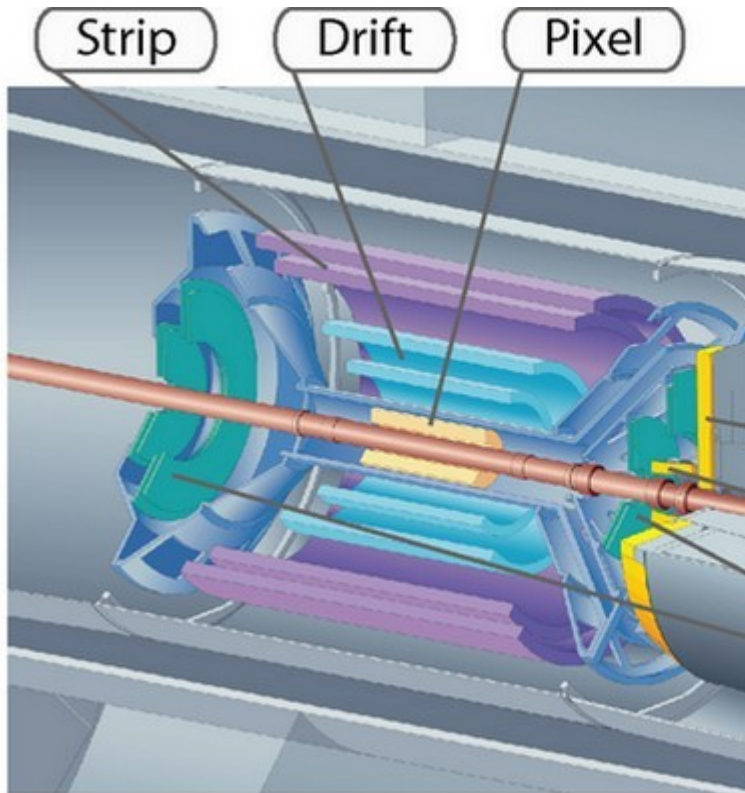


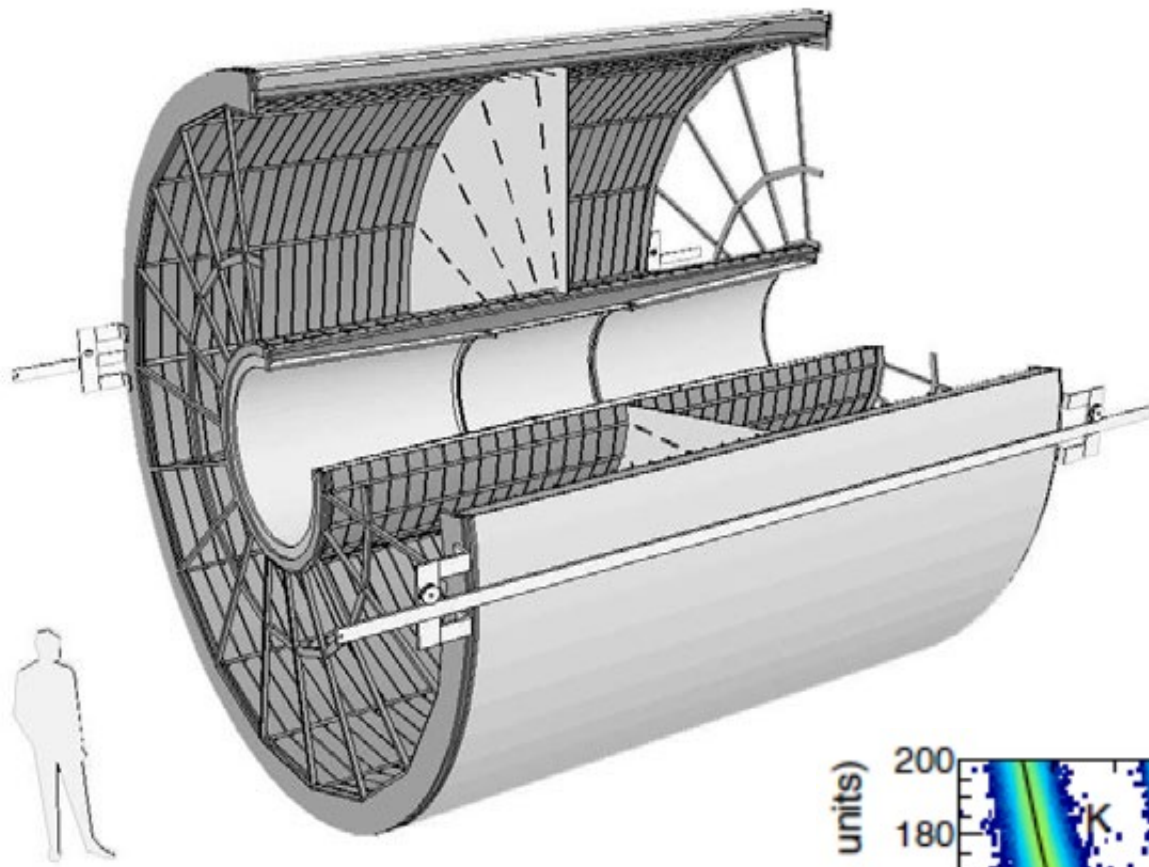


Detector	Observable/technique
ITS	dE/dx
TPC	dE/dx
TRD	transition radiation
TOF	β via time of flight
EMCAL	E/p
HMPID	β via Cerenkov angle

ITS

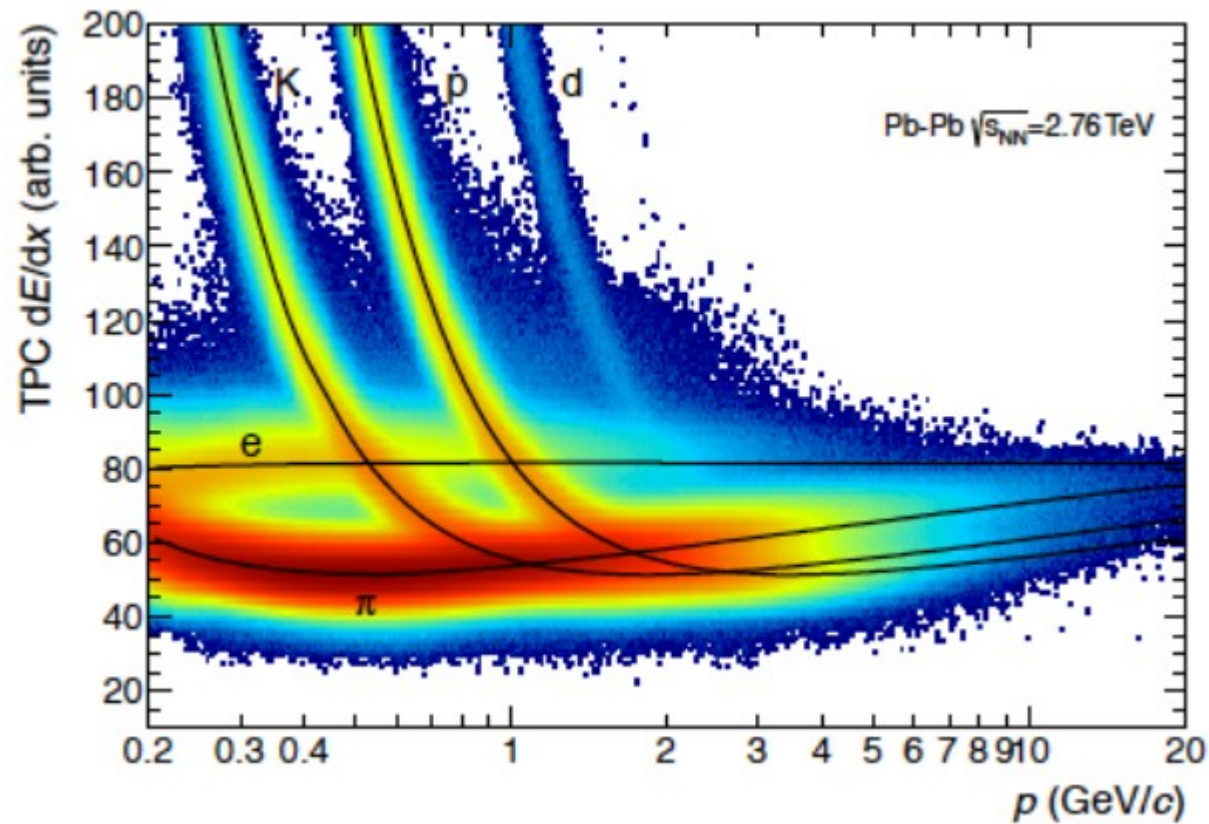
ITS ($|\eta| < 0.9$): six layers: pixel (2), drift (2) and strip (2)
Outer four provide dE/dx for PID





TPC

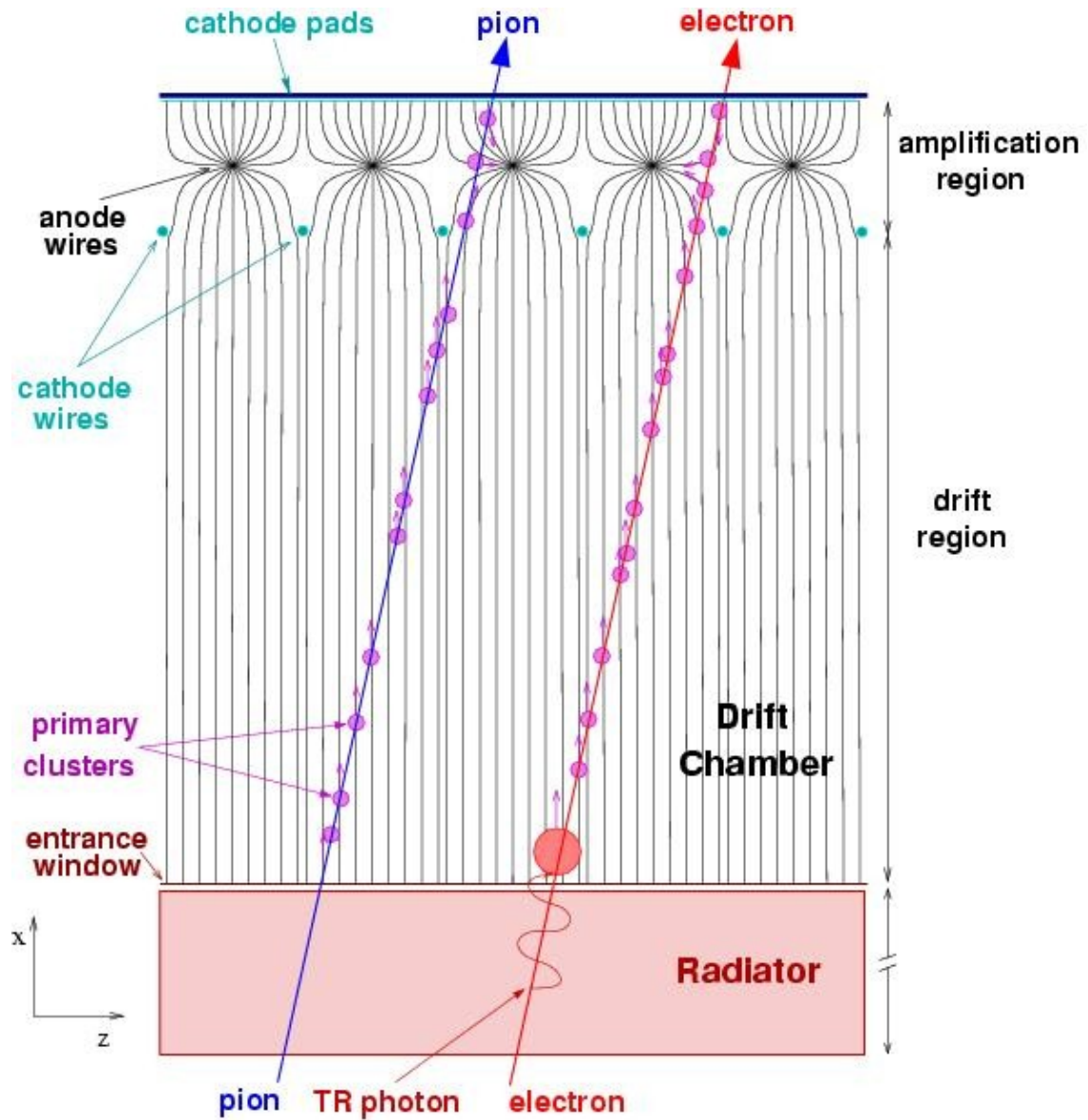
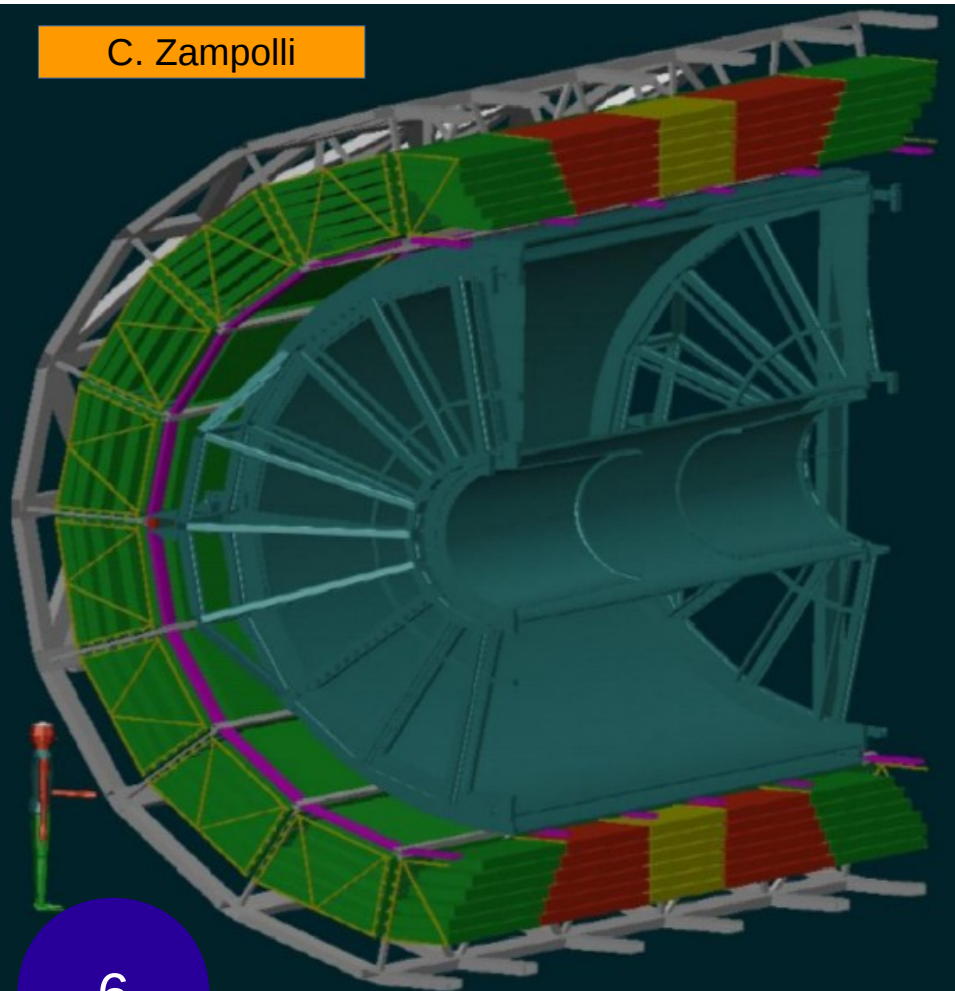
$L=5$ m, $\varnothing = 5$ m, 92 m³ (inner radius
 ~ 80 cm)
 Drift time ~ 90 μ s



TRD

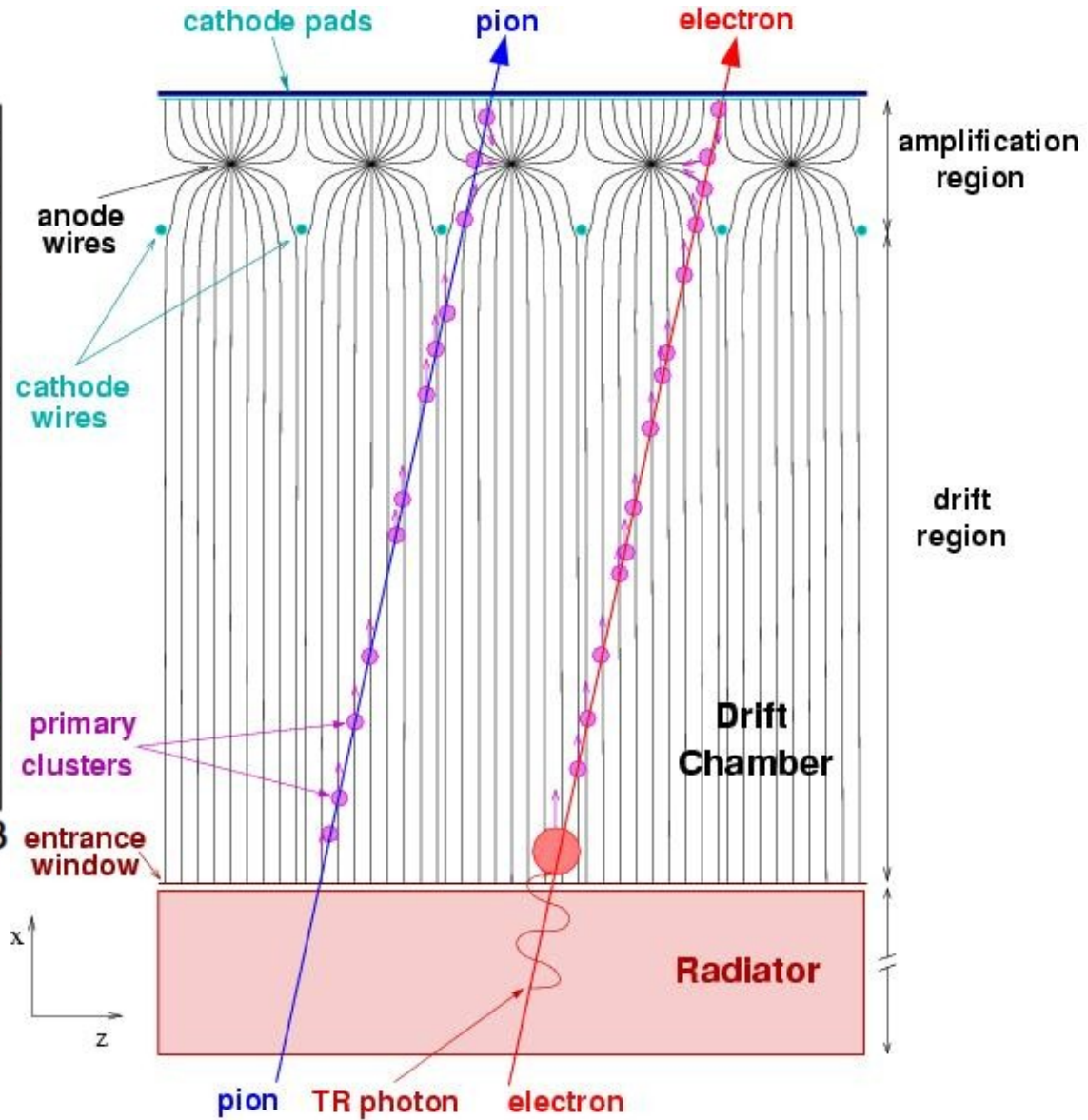
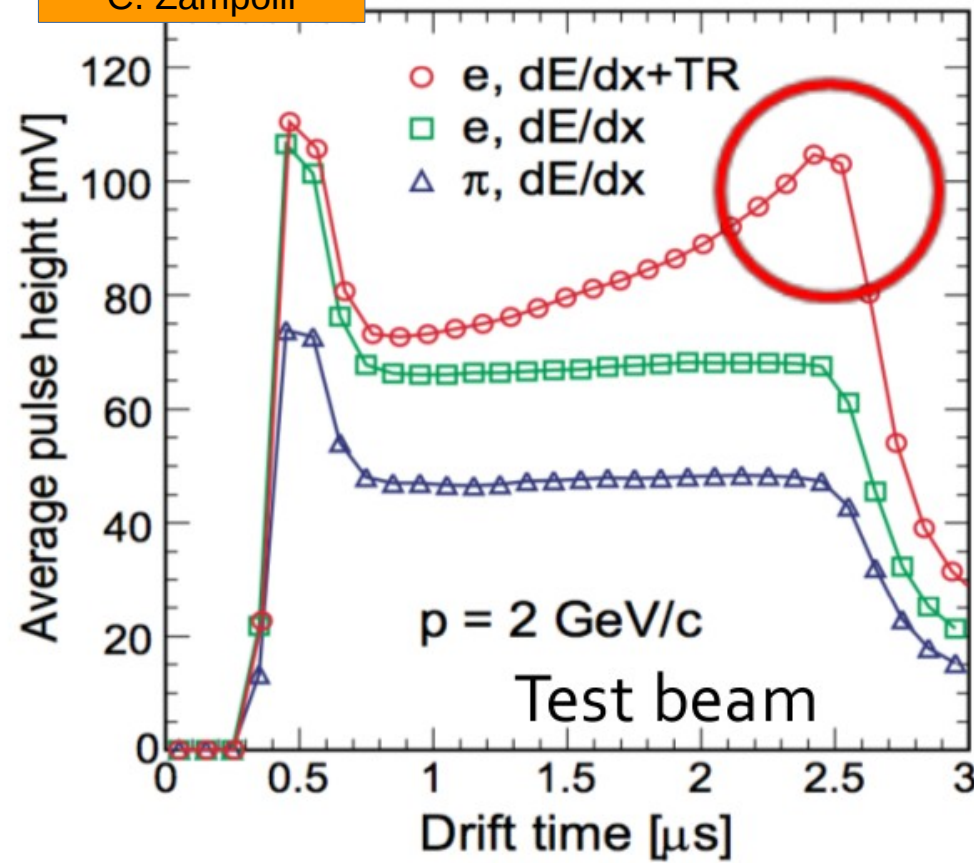
Electron ID in the momentum range $p > 1 \text{ GeV}/c$

C. Zampoli

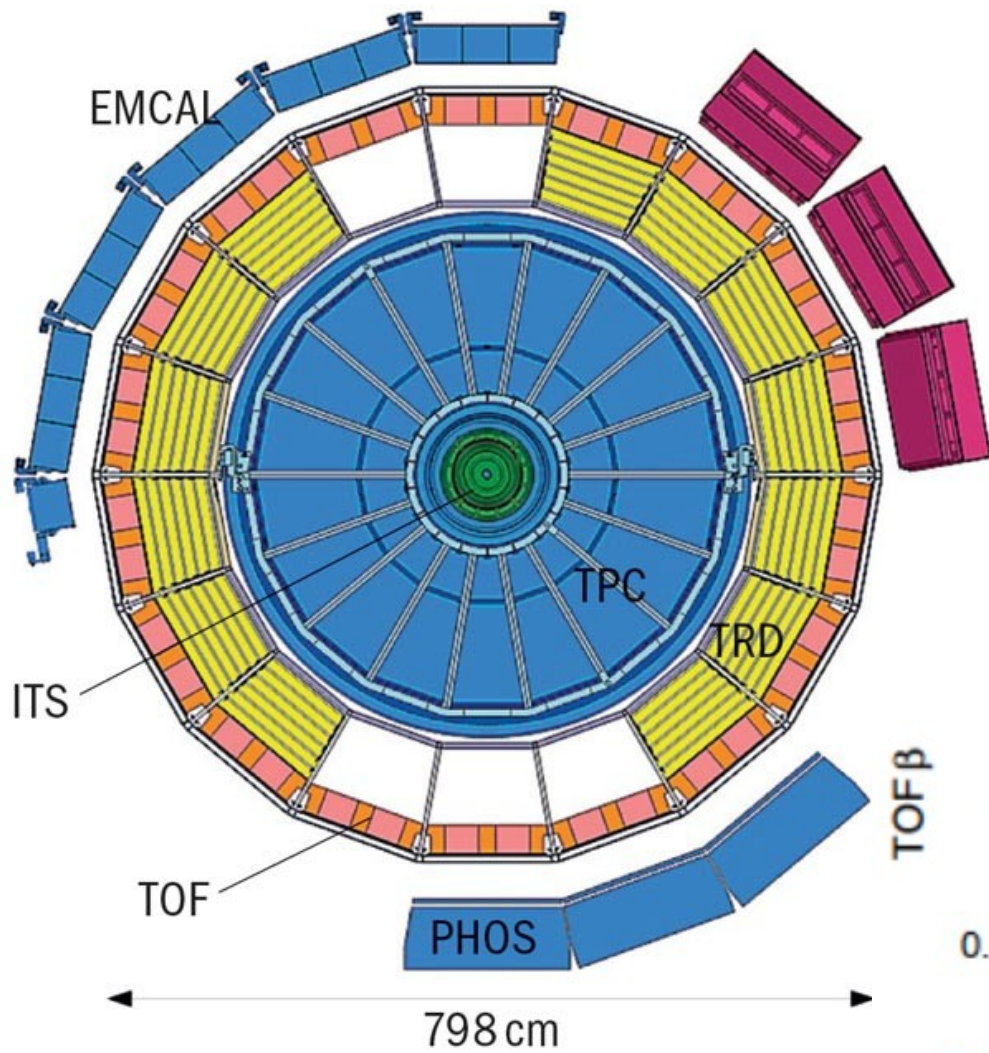


TRD

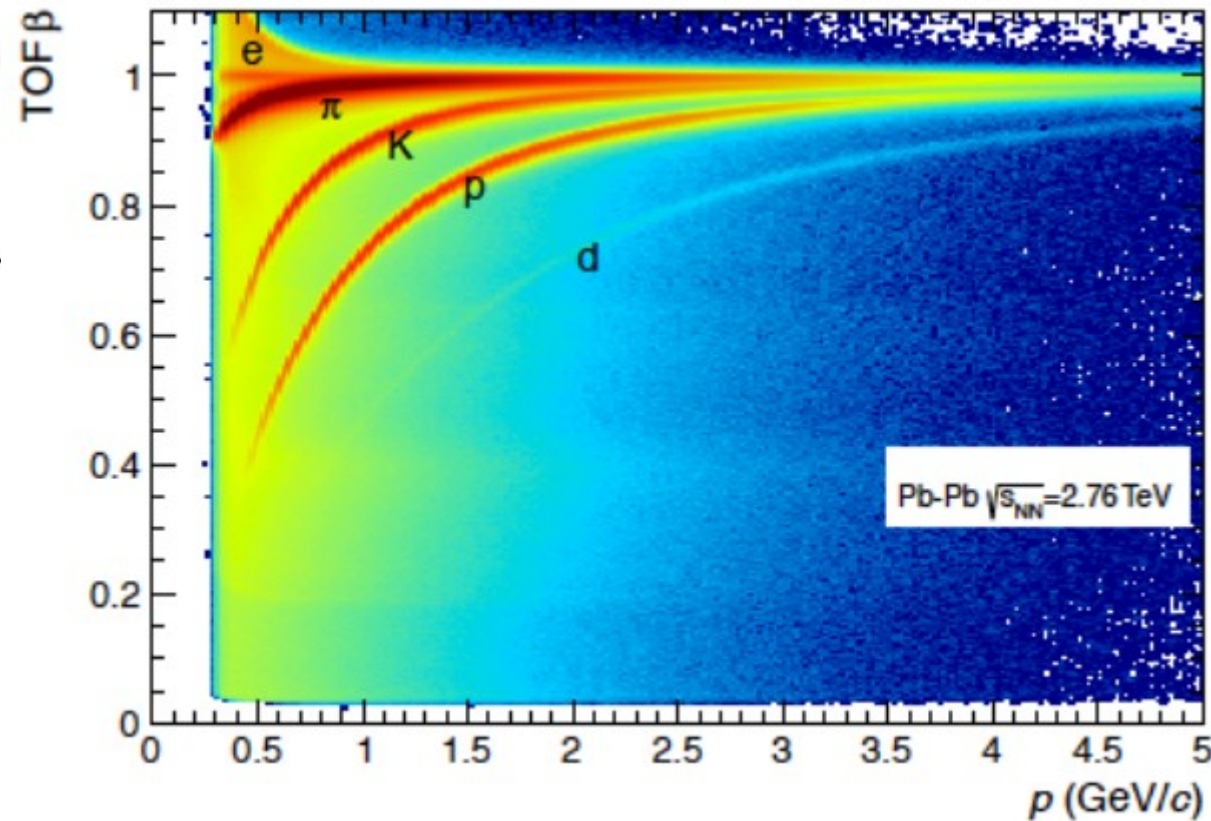
C. Zampoli



TOF



Excellent charged hadron PID performance in separating π/K and K/p over a wide momentum region in the intermediate range.



HMPID

- Single-arm proximity focusing RICH (at 4.7 m, $|\eta| < 0.6$, $1.2^\circ < \varphi < 58.8^\circ$)
- Mass determined deducing β measured from the Cherenkov angle and the momentum from TPC
- $1 < p < 3$ GeV/c for π and K, $1 < p < 5$ GeV/c for p

