

# Electron identification for low-mass dielectron measurements in pp collisions with ALICE

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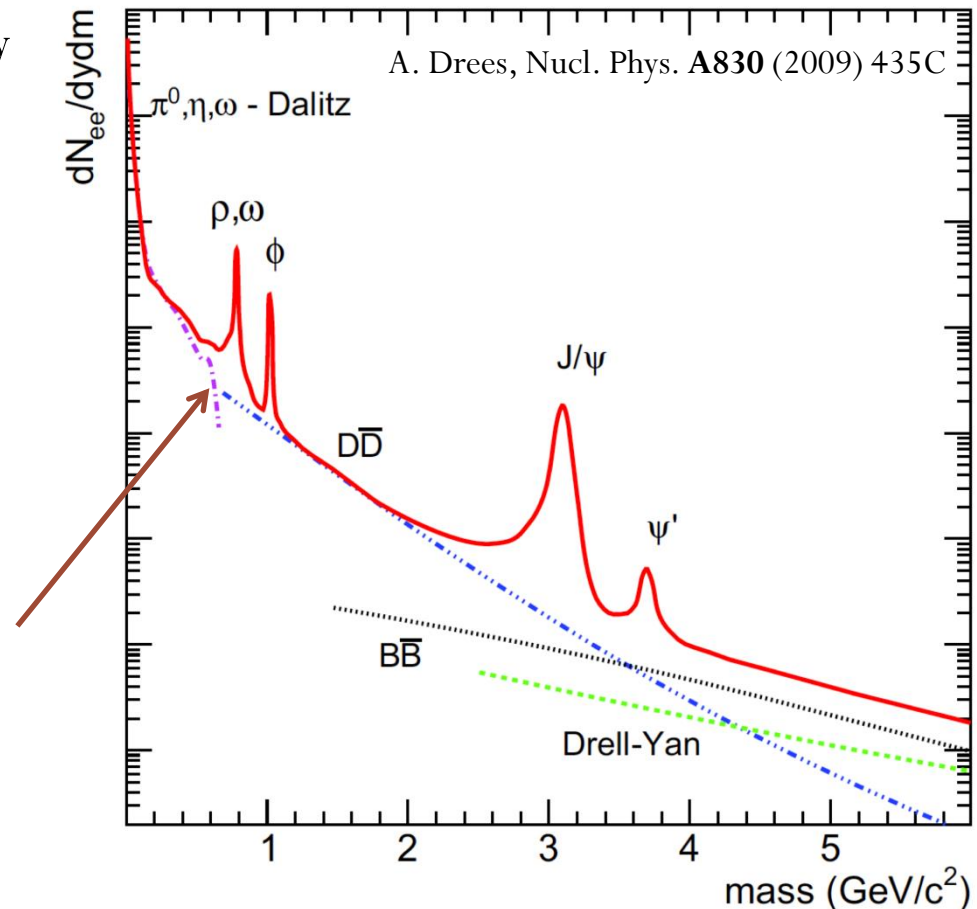
Bormio

25.01.2016



# Motivation

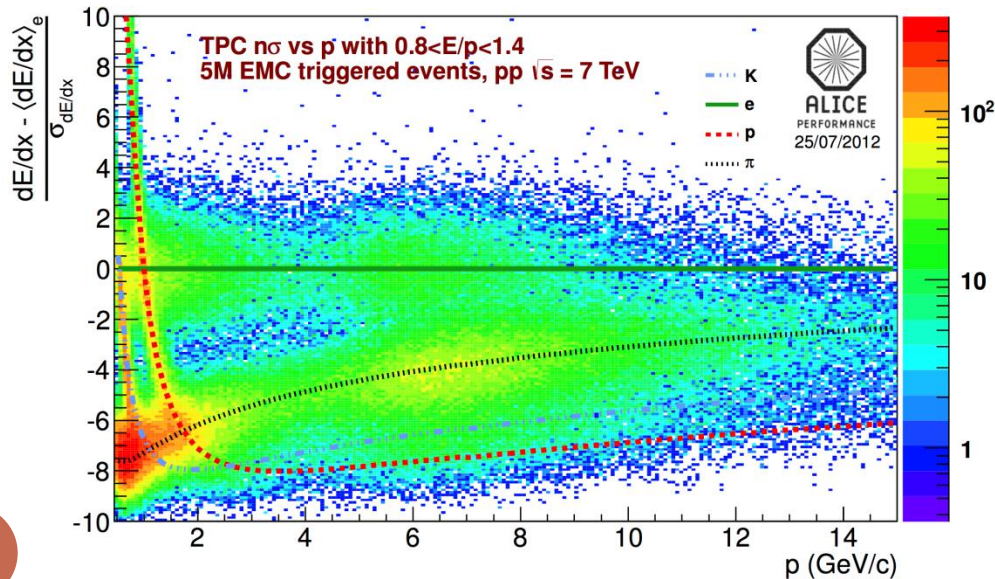
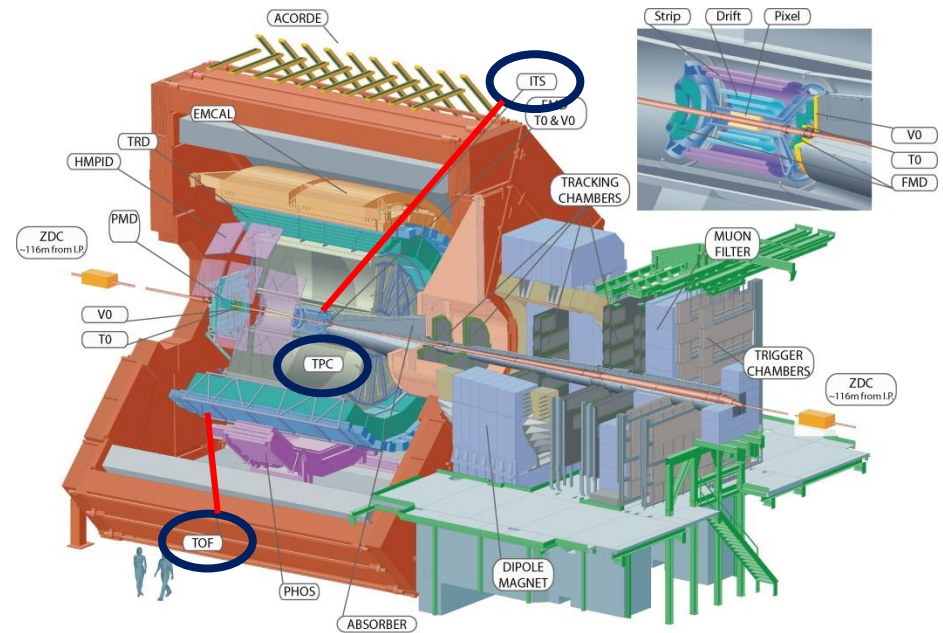
- Quark Gluon Plasma and Chiral Symmetry Restoration studied in heavy-ion collisions
- Perfect probe to access in-medium hadron spectral properties (affected by CSR): dileptons from vector meson decays
  - No strong final state interaction
  - Invariant mass  $m_{ee}$  corresponds to the vector meson mass at the time of the decay
- Relevant region for CSR:  $m_{ee} < 1 \text{ GeV}/c^2$ 
  - broadening of the  $\rho$  meson expected
- Dileptons also studied in pp collisions as crucial reference for nuclear effects
- In both cases high purity electron sample required



**Aim of this work:** obtain a high purity electron sample and derive the purity of the dielectron signal as a function of invariant mass

# Particle Identification in ALICE

- LHC Run I data
- pp collisions at  $\sqrt{s} = 7\text{ TeV}$
- Electron identification with parametrized TPC energy loss distribution
- Kaons and protons cross the electron band at  $p \simeq 0.6$  and  $1.0\text{ GeV}/c$



- Combine the TPC signal with TOF and ITS information
- Study how this additional information affects the statistical significance and the purity of the electron sample