# Reconstructing the K0 from ALICE pp-data at 8 TeV

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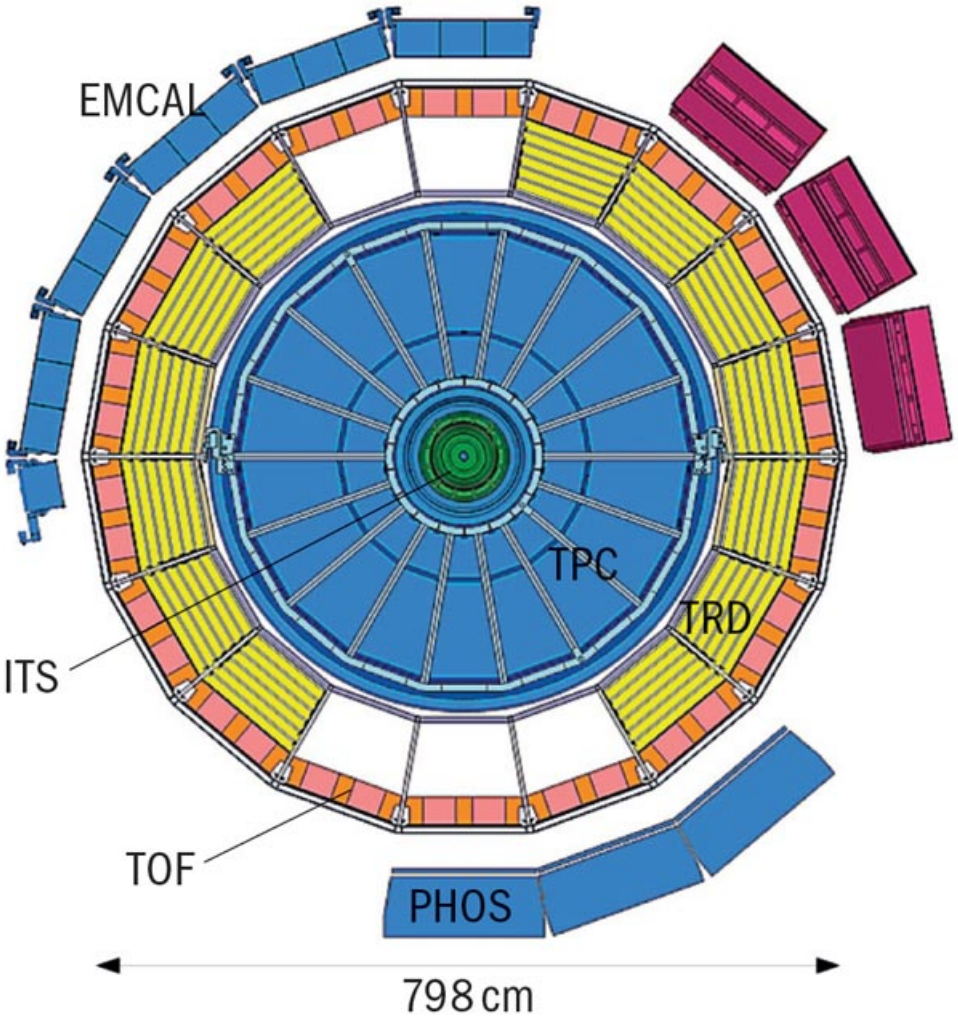
# Overview

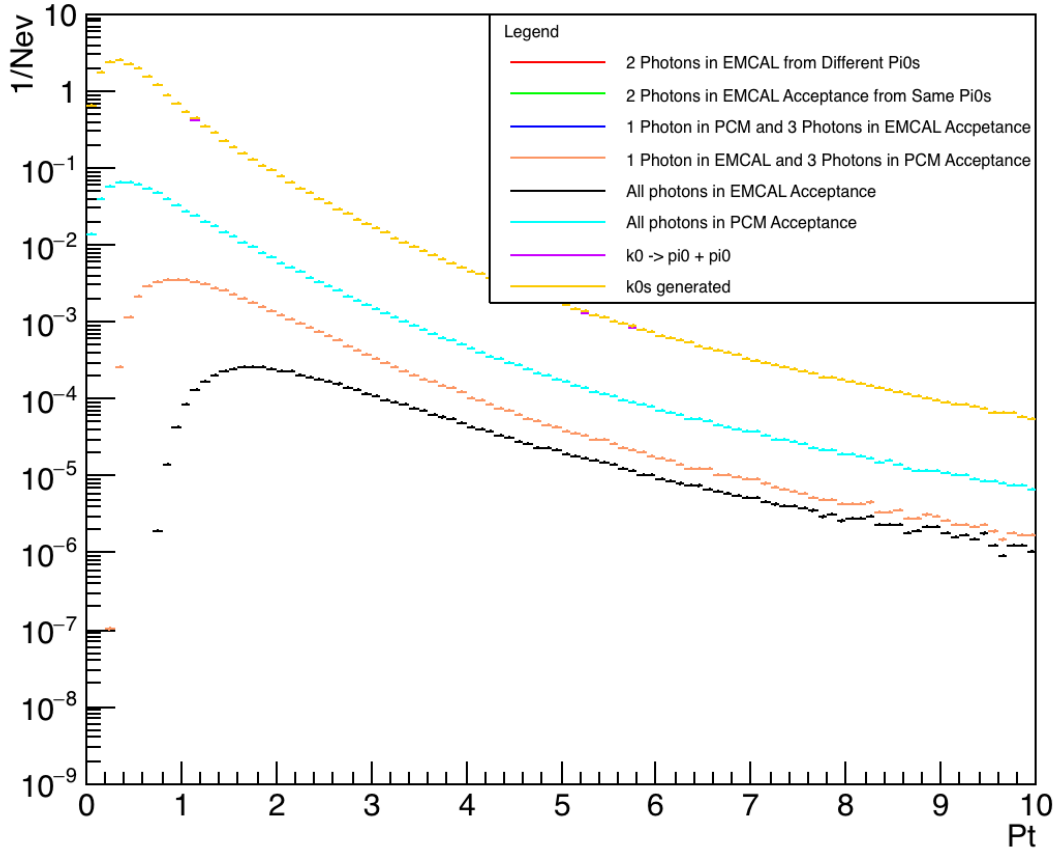
- What is ALICE?
- How can ALICE Reconstruct Kaons?
- Kaon Decay Modes
  - $\pi^0\pi^0 \quad (30.69 \pm 0.05)\%$
  - $\pi^+\pi^- \quad (69.20 \pm 0.05)\%$
  - $\pi^+\pi^-\pi^0$ (Negligably small)

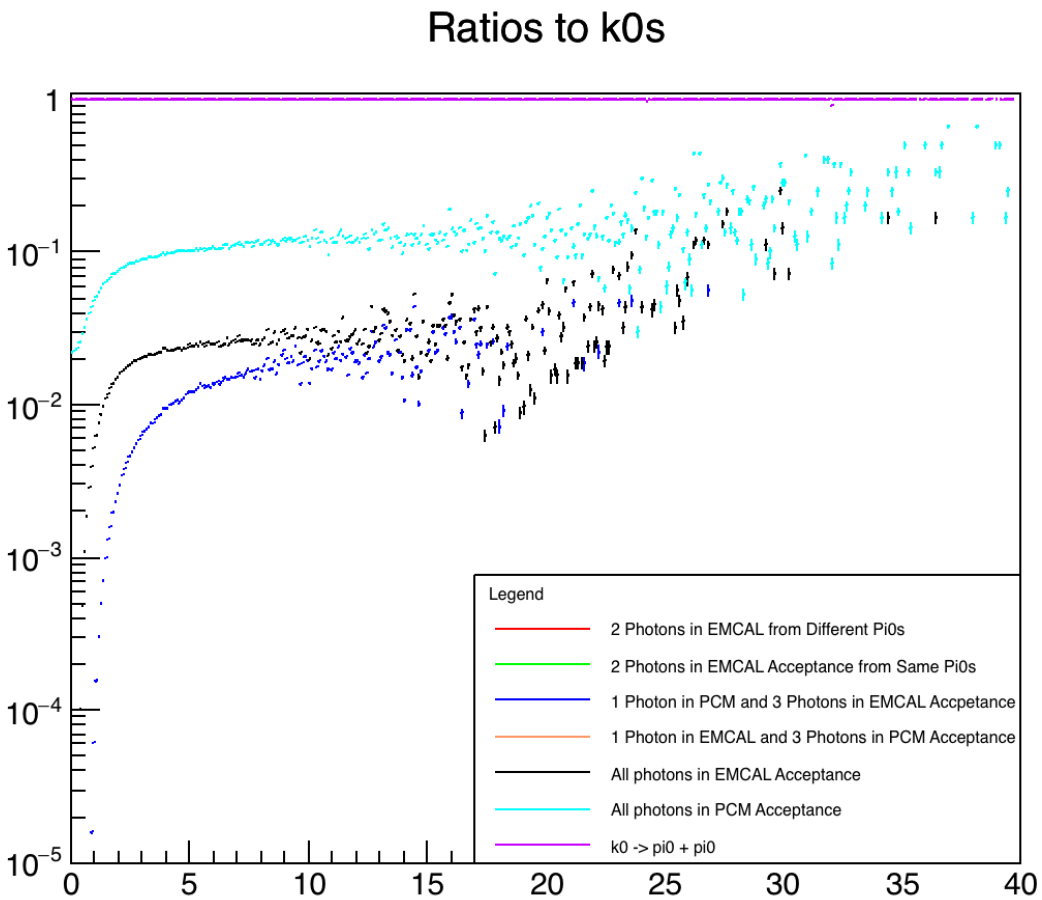


# Progress So Far!

- Monte Carlo Simulation with 6 Acceptance Cases for Decay Photons
  - All 4 Photons in PCM Acceptance
  - All 4 Photons in EMCAL Acceptance
  - 2 Photons in EMCAL Acceptance from Same Pi0
  - 2 Photons in EMCAL Acceptance from Different Pi0s
  - 1 Photon in EMCAL, 3 Photons in PCM
  - 1 Photon in PCM, 3 Photons in EMCAL

- AliAnalysis Task, testing locally.


1/Nev
Pt
Legend
2 Photons in EMCAL from Different Pi0s
2 Photons in EMCAL Acceptance from Same Pi0s
1 Photon in PCM and 3 Photons in EMCAL Accpetance
1 Photon in EMCAL and 3 Photons in PCM Acceptance
All photons in EMCAL Acceptance
All photons in PCM Acceptance
k0 -> pi0 + pi0
k0s generated


Ratios to k0s
Legend
2 Photons in EMCAL from Different Pi0s
2 Photons in EMCAL Acceptance from Same Pi0s
1 Photon in PCM and 3 Photons in EMCAL Accpetance
1 Photon in EMCAL and 3 Photons in PCM Acceptance
All photons in EMCAL Acceptance
All photons in PCM Acceptance
k0 -> pi0 + pi0

# Future Work

- Get the AliAnalysisTask working on the grid, use 8 TeV pp data.
- Refine various event cuts, photon cuts, etc.
- Extract a raw yield, and correct for efficiency and detector acceptance.