Lamarr + Key4Hep

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On behalf of LHCb Simulation Project
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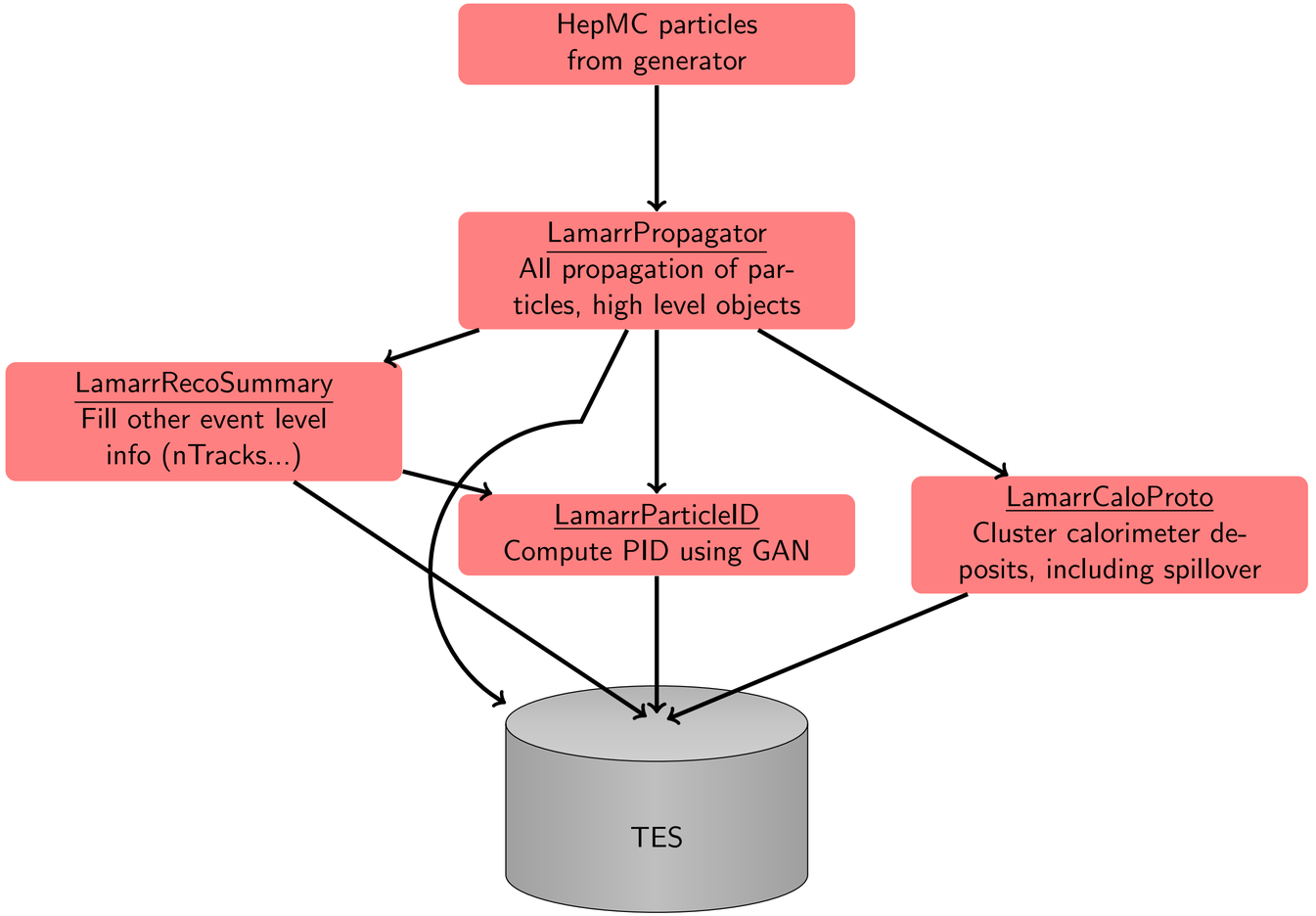
Lamarr in a nutshell

CHEP 2019 (AD)

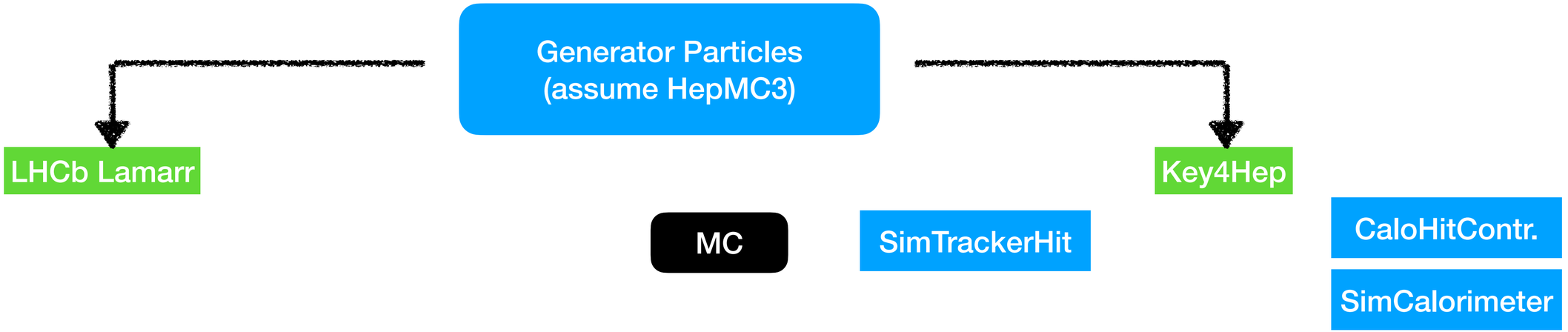
- Goal: Take generator level particles and apply ML techniques or parameterizations to form reconstructed objects which are written to Transient Event Store (TES)
- Fully incorporated within Gauss since 2018, active development ongoing
- Generator independent



Comparison of Current Event Model

Taken from [EDM4Hep site]

- Compare the event models used in Lamarr and Key4Hep to understand what needs to be done



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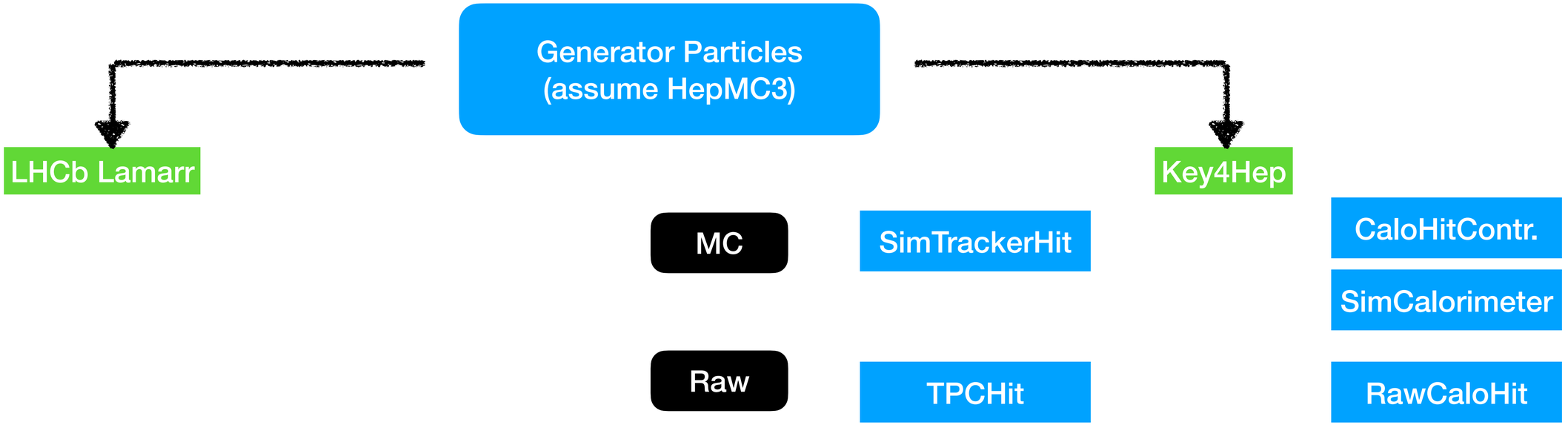

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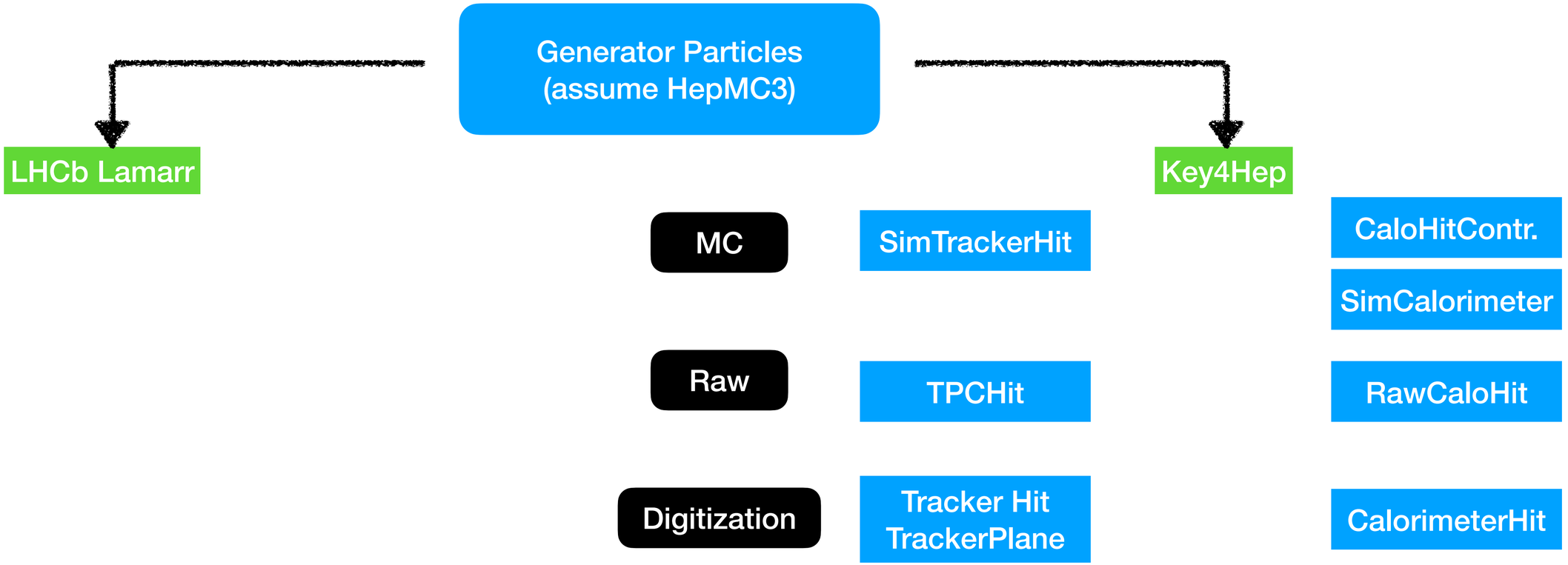

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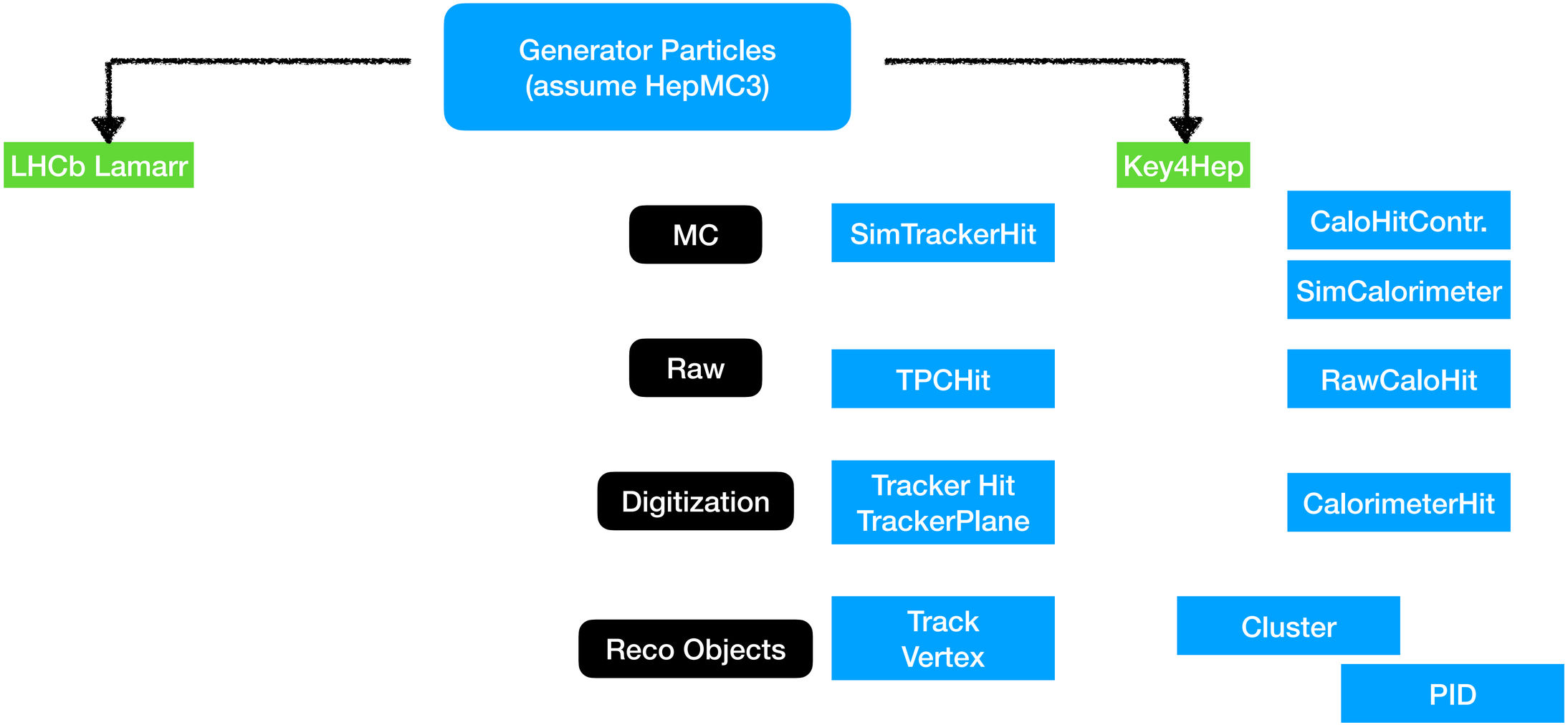

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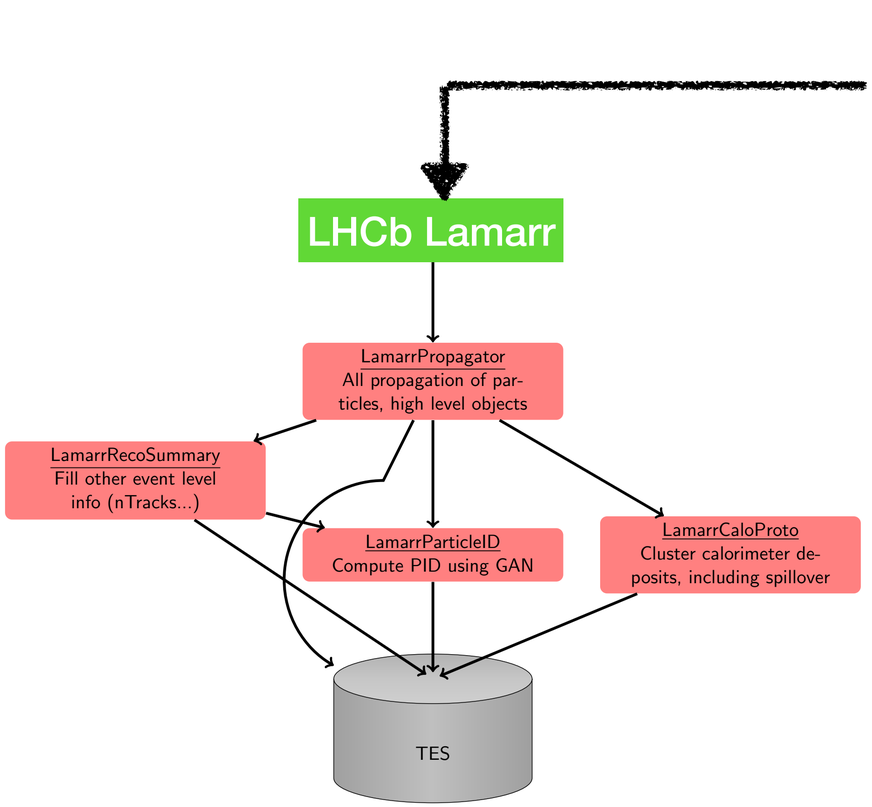

Generator Particles (assume HepMC3)

Key4Hep

MC	SimTrackerHit	CaloHitContr.
		SimCalorimeter
Raw	TPCHit	RawCaloHit
Digitization	Tracker Hit TrackerPlane	CalorimeterHit
Reco Objects	Track Vertex	Cluster
		PID

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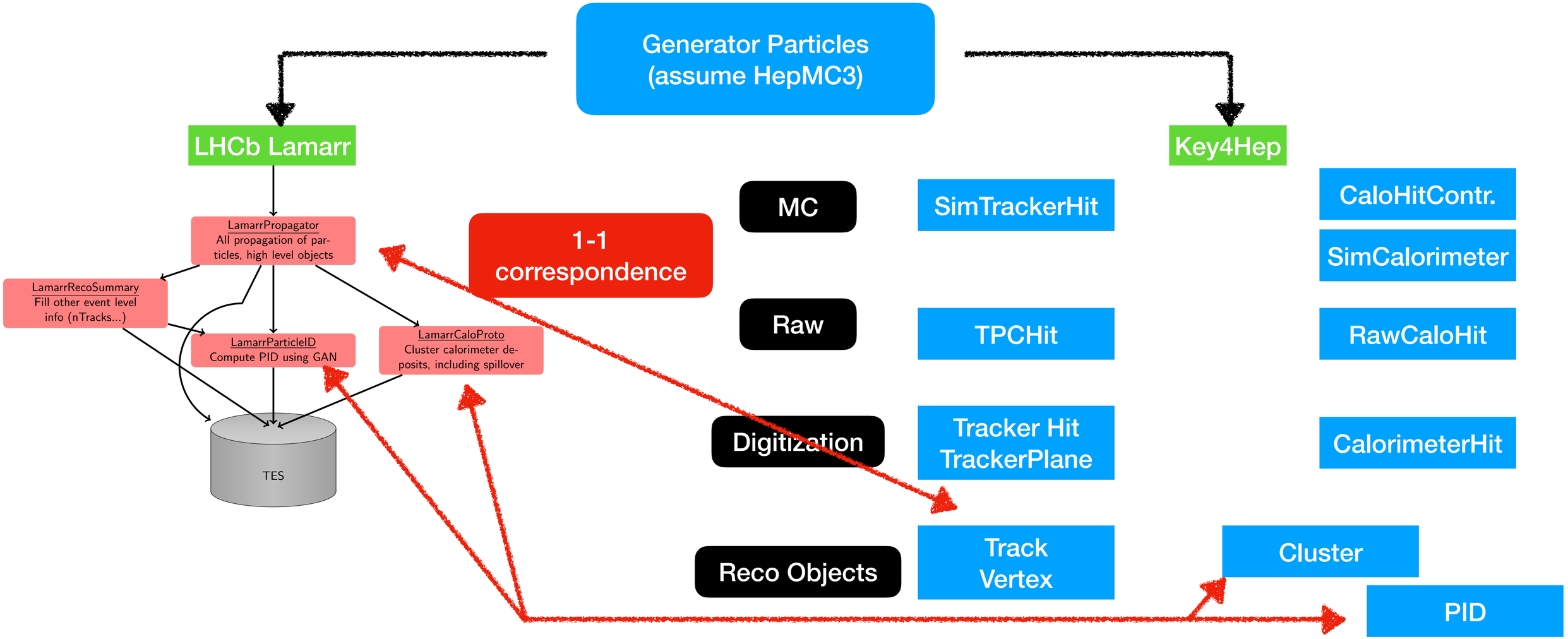

Overview of aims

- To make Lamarr experiment independent, need
  - Gaudi::Functional implementation (half way there)
  - Import Gaudi::Functional version into Gauss-on-Gaussino and build
  - Check EDM4Hep in G-on-G
  - Think about Lamarr `operator()()` implementations
- We've already been working on the first point in the background

Backup