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# High Granularity Hybrid Time-Energy Calorimetry (HIGHTEC)

Calorimeters in HEP have evolved from E measurement devices (UA1/UA2) with low granularity to Energy Flow measurement devices (HERA, TeVatron) with fine segmentation. Precision tracking devices combined with fine ECAL segmentation have allowed for innovative powerful reconstruction techniques: Particle Flow experimented in ALEPH @ LEP e+e- collider and further developed in CMS @ LHC pp collider. The release of full potential requires of this techniques require very high granularity calorimeter, such as the ones developed by the CALICE collaboration and envisaged for the LHC upgrade program.

With real 5D measurements (x, y, z, E, t) allowed by these new hybrid devices, combined with high performance tracking, final state particles and measure their E, Momenta, and Time of Flight will be fully deconvolved.

## High Granularity Calorimeter for Future Colliders (HGCF) program

This Paris-Saclay "Physique des 2 Infinis et des origines" P2IO [department](#) supports the development of such devices spanning the LHC upgrade programs CMS-HGCAL and ATLAS-HGTD as well as the CALICE/ILD SiW-ECAL, who has pioneered this domain.

Short description of HGCAL

Short description of HGTD

Short description of SiW-ECAL

Access & edition limited to the HighTecEditorialGroup members.

-- VincentBoudry - 2016-06-01

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