

## A survey on GEM-based readouts and gas mixtures for optical TPCs

We will survey the properties of optical gaseous TPCs, discussing the present sensitivity limits and prospects for calorimetry and tracking. Primary and secondary scintillation in both pure noble gases and mixtures will be discussed in detail, and a new set of systematic data for few relevant mixtures will be presented, taken with the help of a recently commissioned general-purpose optical TPC at the GDD group at CERN. Concerning the generation of secondary scintillation, particular emphasis will be placed on GEMs and micro-meshes, on the modelling of the scintillation process and on possible applications in fundamental and applied research.

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**Track Classification:** Gaseous Detectors