First ECFA WORKSHOP.

Contribution ID: **75**   Type: **Parallel session talk**

Noble Liquid Calorimetry for an FCC-ee Experiment

Thursday 6 October 2022 17:12 (18 minutes)

Noble liquid calorimetry is a well proven technology that successfully operated in numerous particle physics detectors (D0, H1, NA48, NA62, ATLAS, ⋯). Its excellent energy resolution, linearity, stability, uniformity and radiation hardness as well as good timing properties make it a very good candidate for future hadron and lepton colliders. Recently, a highly granular noble liquid sampling calorimeter was proposed for a possible FCC-hh experiment. It has been shown that, on top of its intrinsic excellent electromagnetic energy resolution, noble liquid calorimetry can be optimized in terms of granularity to allow for 4D imaging, machine learning and - in combination with the tracker measurements - particle-flow reconstruction. This talk will discuss the ongoing R&D to adapt noble liquid sampling calorimetry for an electromagnetic calorimeter of an FCC-ee experiment with a focus on signal extraction, noise mitigation and cryostat material budget. In addition to that, performance studies realized with the FCCSW full simulation framework and first electrical tests of a readout electrode prototype will be presented.

Primary author: FRANCOIS, Brieuc (CERN)

Presenter: FRANCOIS, Brieuc (CERN)

Session Classification: WG 3: R&D

Track Classification: WG3 - Detector R&D