

Cooling studies for the CLIC vertex detector

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The strict requirements in terms of material budget for the CLIC vertex detector (0.2% X0 per detection layer, including cables and supports) require the use of a dry gas for the cooling of the respective sensors. This, in conjunction with the compactness of the inner volumes, poses several challenges for the design of a cooling system that is able to fulfill the required detector specifications. This presentation introduces a detector cooling strategy using dry air as a coolant and shows the results of computational fluid dynamics simulations and experimental measurements used to validate the proposed strategy.

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