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R&D for a PFA calorimeters

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Summary

The CALICE Collaboration

The CALICE collaboration is performing R&D for the construction of highly granular central calorimeters for a future detector to be operated at the International Linear Collider (ILC). In the past five

years the collaboration has successfully designed, constructed and operated in test beams a prototype Si-W calorimeter involving approximately 10000 pads. The test beam results have delivered valuable information allowing the improvement of the layout of the active part for the next generation of prototypes, namely a full scale

calorimeter module being studied as part of the EUDET program. A detector unit up to 1500mm long is currently under construction. Aspects like mechanical rigidity and thermal heat dissipation will be investigated. A particular novel feature of this prototype is the integration of the very front end electronics into the layer

structure of the calorimeter. The electronics will be power pulsed with on-times

suited to the expected bunch structure of the ILC, in order to meet the requirements of a minimal heat dissipation of the ASICs of the order of 1 MicroWatt per circuit.

Primary author: Prof. WARD, David (University of Cambridge)

Presenter: BRIENT, Jean Claude

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