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## Future ASICs for calorimetry at OMEGA

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Calorimeters have recently evolved to provide much more granularity in order to better identify particles inside showers and improve the energy resolution, in particular for jets. “Imaging calorimetry” has been studied in detail by the CALICE collaboration since the mid 2000s and more recently chosen by the CMS experiment to equip its endcap calorimeter. Imaging calorimetry increases by one or two orders of magnitude the number of channels and requires readout electronics embedded onto the detectors. Also recently, timing information with a few tens of picoseconds accuracy has been added to the energy measurements and provides valuable supplementary information. All these improvements have been made possible by high performance readout ASICs, handling the large calorimeter dynamic range with high speed low noise performance while operating at low power ( $\sim 20$  mW/ch). In the future, the granularity will continue to increase, requiring even lower power operation. This will be achieved by further progress on the analog front-end and also advanced on-chip data processing.

OMEGA laboratory has been developing the SKIROC/SPIROC/HARDROC ASIC family for the CALICE readout and more recently HGCROC for CMS HGCAL, which is now undergoing its final tests before fabrication for the HL LHC. Their design and performance will be recalled and the architectural choices and prototypes in design for the future experiments (EIC, ILC, FCC...) will be presented.

**Primary author:** DE LA TAILLE, Christophe (OMEGA CNRS/IN2P3 and Ecole Polytechnique)

**Presenter:** DE LA TAILLE, Christophe (OMEGA CNRS/IN2P3 and Ecole Polytechnique)

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