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Call for a new approach to detector developments involving microelectronics

Microelectronics technologies form the basis of many innovative developments for HEP detectors and will continue to do so. However, the cost of access (both in terms of monetary resources and design manpower) has exploded over recent years. Even the largest experiments (ALTA and CMS) have been obliged to pool design resources for their latest pixel detector upgrades. The Medipix Collaborations have demonstrated that it is possible to develop ASICs which can bring meaningful breakthroughs in different scientific fields. The pooling of resources has permitted to gain access to leading edge packaging technologies which would otherwise be unobtainable. The Timepix ASICs, in particular, have been used in many HEP experiments both large and small. The critical mass of resources available in the collaborations has enabled the development of knowhow which led directly back to designs for HEP (LHCb VELOpix ASIC). However, such activities have been considered as low priority or even a distraction by some in the HEP community. As the need for resource pooling grows with time, the HEP community needs to find ways to open up to collaborating with others. The HEP community is a model of international collaboration. If it wants to benefit from the fantastic opportunities available using near leading-edge CMOS processes it needs to extend this model to include colleagues from other fields of science.

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