FATALIC: a fully integrated electronics readout for the ATLAS tile calorimeter at the HL-LHC

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FATALIC is based on a **130nm CMOS technology** and performs the complete processing of the signal (amplification, shaping, digitisation) on a wide range (25 fC to 1.2 nC). The innovative part of this work is to have **a current-reading ASIC** with 3 gains **including a dynamic gain switch**. The chip is made of current conveyors, shapers, 12-bits pipeline analog-to-digital converters.

What is shown in the poster

design, intrinsic performances, test beam results, behaviour in high pile-up