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GASTONE a new ASIC for the cylindrical GEM Inner Tracker of KLOE experiment at DAFNE

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A mixed analog-digital ASIC prototype named GASTONE (GEM Amplifier Shaper Tracking ON Events) designed in the CMOS AMS 0.35um technology has been developed to specifically readout the cylindrical GEM inner tracking detector built as improvement of the KLOE apparatus at the e+e- DAFNE collider. The analog part of the ASIC is characterized by a very low power dissipation of 1.32 mW/channel for our specific application and by an equivalent input noise charge (ENC) of 1200 e- + 45 e-/pF achieved for a supply current of 100 uA in the input transistor. A prototype with only 16 readout channels has been developed whereas a final version will implement a total of 64 channels for the final detector readout. The results of the measurements obtained on a cylindrical mono-dimensional GEM prototype by using cosmic muons and a proton beam test performed at CERN instrumented with GASTONE device, will be shown.

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