Contribution ID: **53** Type: **not specified**

The VMM ASIC - From R&D to production

Thursday, 18 March 2021 12:00 (20 minutes)

The VMM3a is a System on Chip (SoC) custom Application Specific Integrated Circuit (ASIC). It is the production version which will be used as the front ASIC for both Micromegas and sTGC detectors of the ATLAS Muon New Small Wheels upgrade. Due to its highly configurable parameters it can be used in a variety of tracking detectors and it is already proposed for another experiments. It is fabricated in the 130nm Global Foundries 8RF-DM process. The ASIC integrates 64 channels, each providing charge amplification, discrimination, neighbour logic, amplitude and timing measurements, analog-to-digital conversions, and either direct output for trigger or multiplexed readout within a data-driven readout system. The front-end amplifier can operate with a wide range of input capacitances, has adjustable polarity, gain and peaking time. The ASIC has been tested on resistive Micromegas and sTGC prototypes in test beam campaigns at CERN. The roadmap from R&D to production and the performance of the VMM3a at the production stage will be presented. Moreover the yield of the 70'000 production ASICs will be presented.

Primary author: IAKOVIDIS, George (Brookhaven National Laboratory)

Presenter: IAKOVIDIS, George (Brookhaven National Laboratory)

Session Classification: Readout and ASIC

Track Classification: Readout & ASICs