Contribution ID: **49** Type: **Poster presentation**

A low noise front-end for the Belle2 forward electromagnetic calorimeter upgrade

Friday 10 June 2016 10:30 (1h 35m)

The Belle II experiment will operate at the SuperKEKB e+ e- collider, designed to reach a top luminosity 8x10^35 at the Y(4s) resonance. The high background environment of the accelerator poses serious challenges to the design of the detector. In particular the Belle2 collaboration is developing a strong upgrade program which involves the forward electromagnetic calorimeter. We'll use pure CsI crystal, since they have less scintillation time but unfortunately much lower light yield. The electromagnetic calorimeter upgrade inherits detector constrains from the old one therefore an intense R&D program on photon-detectors and front end electronic has been done by the Italian collaboration. Our preliminary results show that a readout chain using APDs, to match the detector constraints and a dedicated front-end card for the readout meet the BelleII collaboration requirements. In this paper we'll show the experimental setup, we'll detail the main characteristics of the read-out and power distribution system. The front-end card hosts both a low noise pre-amp and a power regulator to set the single APD bias voltage. The main HV voltage module has been developed on purpose to deliver a low noise power distribution to the front-end cards. All the relevant parameters of the front-end system can be set and monitored via Ethernet using the epics control system. Slow control and monitoring functions in BelleII are performed by a dedicated hardware, usop, developed on purpose.

Authors: BUDANO, Antonio (Roma Tre Universita Degli Studi (IT)); TAGNANI, Diego (Istituto Nazionale Fisica Nucleare (IT)); CORRADI, Giovanni (Laboratori Nazionali di Frascati (LNF)); BRANCHINI, Paolo (Roma Tre Universita Degli Studi (IT))

Co-authors: ALOISIO, Alberto (Universita e INFN, Napoli (IT)); Prof. GALASSO, Matteo (infn)

Presenters: BUDANO, Antonio (Roma Tre Universita Degli Studi (IT)); TAGNANI, Diego (Istituto Nazionale Fisica Nucleare (IT)); CORRADI, Giovanni (Laboratori Nazionali di Frascati (LNF)); Prof. GALASSO, Matteo (infn)

Session Classification: Poster Session 2

Track Classification: Front End Electronics and Fast Digitizers