A SYSTEMATIC STUDY OF THE ARGO EXPERIMENT FRONT-END ELECTRONICS

G. Aielli (2), P. Camarri (1,2), R. Cardarelli (1,3), V. Chiostri (2), L. Di Stante (2), **B. Liberti** (1,2), A. Paoloni (1,2), E. Pastori (3) and R. Santonico (1,2)
(1) For the ARGO Collaboration, (2) University of Rome "Tor Vergata", Physics Department, Via Della Ricerca Scientifica 1, 00133 Rome, Italy, (3) INFN Sezione Roma2, Physics Department, Via Della Ricerca Scientifica 1, 00133 Rome, Italy.
liberti@roma2.infn.it

The Front-End Electronics performing the ARGO RPCs readout is a full custom GaAs circuit. Its global function is to amplify, discriminate and convert to ECL standard the detector signals. It is based on a three stage voltage amplifier and on a comparator with variable threshold, fully implemented in a single eight channels IC, mounted on a board installed inside the detector Faraday cage. About 19000 FE boards are foreseen for the experiment. We describe here a systematic test devoted to check the dynamic functionality of each single channel. A fixed input signal from a generator, simulating the detector, is injected into each channel. The output is studied as a function of the comparator threshold. This method allows to measure all relevant electronics parameters and to build up a complete database for the experiment. The statistical results from more than 20000 analyzed channels are presented.