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Use of a Big Liquid Argon Spectrometer BARS for cosmic ray studies

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The design of a fine grained 600t liquid argon calorimeter BARS is described. BARS electronics includes about 30k channels for low noise amplifiers and ADC's. DAQ system makes it possible to select channels with signal above the threshold chosen. 48 scintillation hodoscopes placed inside the liquid argon are used to form the 1-st level trigger. The total number of scintillation counters in liquid argon is 384. Sums of ionization signals are used to produce the 2-nd level trigger. Results of the first use of liquid argon calorimetry for precision measurement of cosmic ray muon spectra and composition of extensive atmospheric showers are discussed.