

ISMARAN for reactor antineutrino measurements

The Indian Scintillator Matrix for Reactor Anti-Neutrinos – ISMRAN, is an experiment designed for reactor antineutrino measurements for realizing the goals of reactor monitoring and studies on active-sterile neutrino mixing to understand the Reactor Antineutrino Anomaly (RAA). ISMRAN Phase – I (1 ton by weight in an interactive volume of 1 m^3 , of Gd wrapped Plastic Scintillators, with 200 channels of read outs via digitizers) has been currently assembled at Hall-9, BARC (Fig.1) for measuring the cosmogenic background in a non-reactor environment, before its scheduled shifting, with shielding, to Dhruva Reactor Hall, in January 2021.

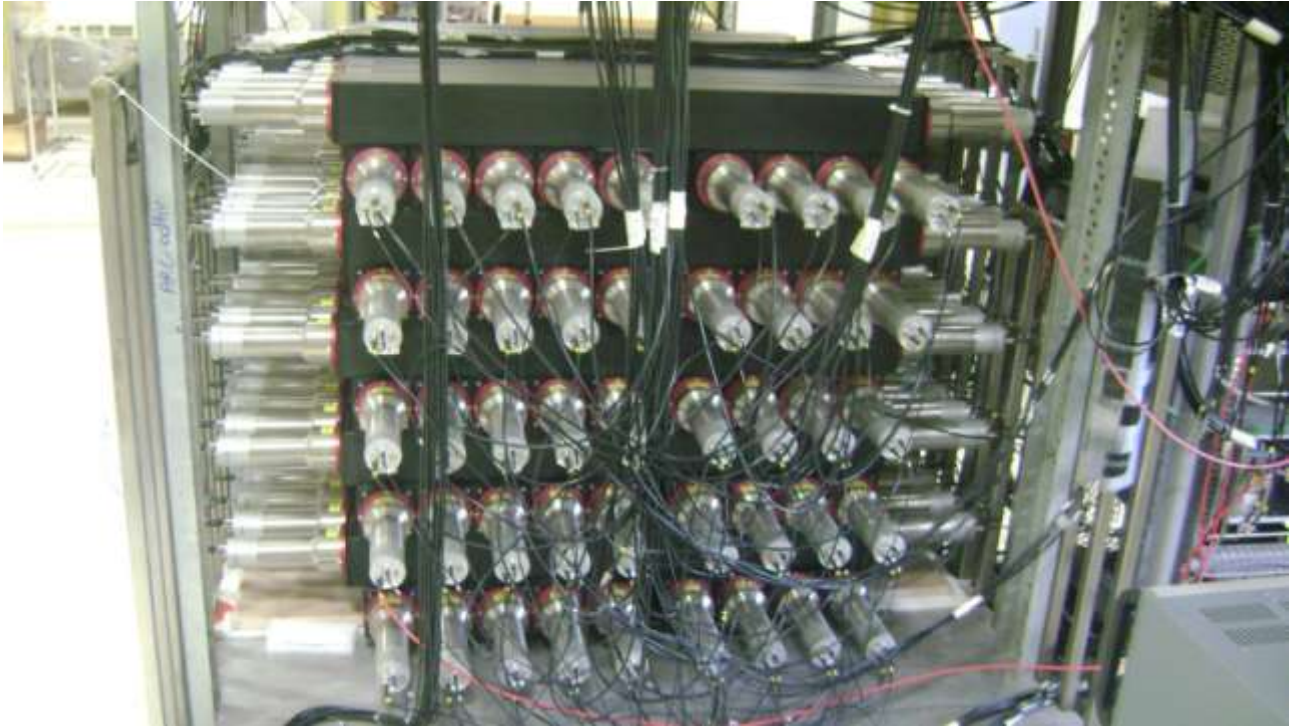


Fig.1 : Full scale ISMRAN in a staggered geometry at Hall-9 to measure the Cosmogenic background, in a non-reactor environment

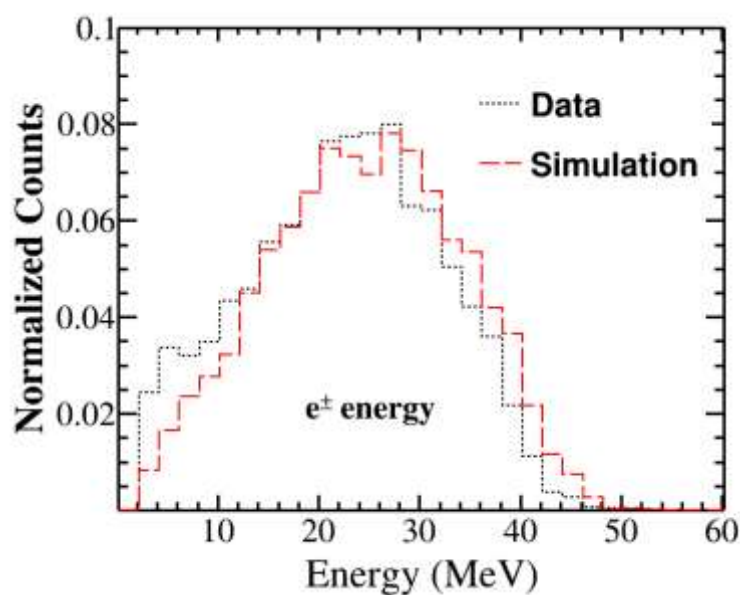


Fig.2 : Cosmogenic background (e^+/e^- energy spectra from the decay of μ^+/μ^-) measured in a non-reactor environment with full ISMRAN array at Hall-9, BARC