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# Study of neutron response using time of flight technique in ISMRAN detector.

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We present the measurements of the neutron response in **ISMRAN** (Indian Scintillator Matrix for Reactor Anti-Neutrinos) set up consisting of an array of 9×10 Plastic Scintillator Bars at BARC, Mumbai. ISMRAN is an above ground set up at ~13m from **Dhruva** reactor core for the detection of reactor based anti-neutrinos via inverse beta decay process. The ISMRAN setup will be shielded by a 10 cm of Lead and 10 cm of Borated Polyethylene to reduce the reactor related background. The dominant source of reactor related background in the vicinty of the detector are gamma and neutrons. The neutron generated from a Am-Be source are used to study their response using time of flight technique in the ISMRAN. These measurements are useful in context of discriminating fast neutron reactor background from reactor anit-neutrinos in the Dhruva reactor hall. The estimation of proton recoil energy and the neutron capture time in the ISMRAN detector are studied in detail.

## What is your experiment?

Study of neutron response using time of flight technique in plastic scintillator.

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