



SEMINAR ANNOUNCEMENT

“Building a Multi-Cathode Gas-filled Detector”

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Detecting and identifying the nuclear radiation or decay yield with high accuracy is a great challenge for experimental physicist. A number of laboratory instruments were invented to detect and measure the radiation. One of the most commonly used is the proportional counter, which measures the energy of incident particle, by producing ionization output proportional to the particle energy. This ionization output allows the discrimination of particles with same charge e.g. positron, protons, alpha or heavier ions. Another widely used instrument is the scintillator detector, which measures the energy of incident particle, also by producing ionization in the scintillator material causing flashes of photons, that are collected and multiplied in the output pulse of a photo-multiplier tube PMT. The Multi-Cathode-Gasfilled Scintillator MCGS detector we are building gets advantages of the proportional chambers and the scintillator detectors. It identifies the particles by measuring their energy loss E_{loss} in the proportional chamber due to the collision with the atoms of the filling gas, and the rest energy E_{rest} of the particles which is measured when the particles lose the rest of their energies in the scintillator material producing photons that are collected by the photomultiplier tube.

A simplified and highly accurate data acquisition system is under development to be used by the detector.