

## Investigation of the Effect of Pressure Changes on the Gas Proportional Detector

**Authors :** S. M. Golgoun, S. M. Taheri

**Abstract :** Investigation of radioactive contamination of personnel working in radiation centers to identify radioactive materials and then measure the potential contamination and eliminate it has always been considered. For this purpose, various ways have been proposed so far and different devices have been designed and built. Gas sealed proportional counter has special working conditions. In this research, a gas sealed detector of proportional counter type was made and then its various parameters were investigated. Some parameters are influential on their working conditions and one of these most important parameters is the internal pressure of the proportional gas-filled detector. In this experimental research, we produced software for examination and altering high voltage, registering data, and calculating efficiency. By this, we investigated different gas pressure effects on detector efficiency and proposed optimizing working conditions of this detector. After reviewing the results, we suggested a range between 20-30 mbar pressure for this gas sealed detector.

**Keywords :** gas sealed, proportional detector, pressure, counter

**Conference Title :** ICADP 2022 : International Conference on Accelerator and Detector Physics

**Conference Location :** Vancouver, Canada

**Conference Dates :** May 23-24, 2022