Front cover

The figures shown on the front cover represent a schematic diagram of Gas Scintillation Proportional Counter (hereafter abbreviated as GSPC) and pulse height spectra (Mn Kα, β) obtained by GSPC. The GSPC is a parallel-mesh type one as shown schematically in the upper figure. The instruments and conditions in experimental are presented in Table1. The entrance window consists of 50 μm thick Be of 30 mmø area. The outer surface of Be is coated with a dotite for electrical conductivity. The counter is filled with Xe gas which is introduced for the purification for rare gases.

An X-ray photon absorbed in the first region produces a cluster of primary electrons. Theseelectrons drift towards the first mesh held at a potential V_1. This region is called the drift region. In the second region, the electrons are accelerated towards the second mesh at a potential V_2, and generate a number of photons, whose total number is proportional to the energy of the incoming X-ray photon. This is called the accelerating region. The performance of the counter is determined by the high voltage values V1 and V2 and the gas pressure p. We operate the counter with V_1 = 340 V, V_2 = 5660 V and p = 1.5 atm. As an X-ray source, Mn K X-rays (Radio-Isotope ^{55}Fe) were used. In the laboratory, GSPC has been developed for the observations of the fluorescence x-rays below 1 keV.