

PIXE MEASUREMENTS AT J.STEFAN INSTITUTE

M.Budnar

J. Stefan Institute, University of Ljubljana, Ljubljana

The PIXE method for trace element analysis of different samples has been introduced at Ljubljana 1.8 MeV Van de Graaff accelerator some years ago (ref. 1). Working on the method a need for a new chamber satisfying several requirements arose, notably, a uniform proton beam, low background from secondary electrons, accurate proton current measurements, detection of backscattered protons, automatic changing of at least ten samples and a possibility of extra vacuum pumping of the chamber.

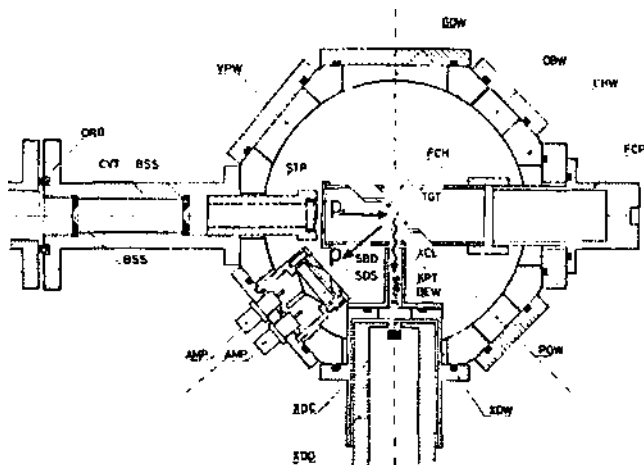


Fig.1: PIXE chamber - p_0 = incoming proton beam, p = back-scattered protons, SBD = surface barrier detector, XDC = X-ray detector, TGT = target, FCU - Faraday cup

The chamber (Fig.1) which was made at the J.Stefan Institute satisfied all the above requirements. It has been proved and applied on several applicative measurements. Cross sections for L and M X-ray production with 1-2 MeV protons on heavy and medium atoms will be also measured.

Reference:

1. P.Kump, P.Rupnik, M.Budnar, I.Kreft, Nucl. Instr.Meth. 142 (1977) 205