

THE CRACOW SCANNING NUCLEAR MICROPROBE: RESEARCH POSSIBILITIES AND ELEMENT MICROANALYSIS

S. Lebed, J. Lekki, A. Potempa, Z. Stachura, J. Styczen, P. Osyczka

A new micro analytical setup based on the scanning nuclear microprobe (MP) was constructed in the Institute of Nuclear Physics (INP) in Cracow, Poland in the framework of Polish-Ukrainian scientific and technical collaboration. The particle induced X-ray emission (PIXE) technique is installed on the MP. The PIXE spectra and corresponding two-dimensional distribution maps ($250 \times 250 \mu\text{m}^2$) of chemical elements in thin (80 - 150 μm) sections of the lichen *Xanthoria parietina* were obtained. Heterogeneity of several elements (trace elements, in particular) distributions is clearly visualized in the maps. The obtained results show that micro-PIXE method can be extremely useful in the investigations of physiological and biochemical processes in a tissue of biological sample as well as in biomonitoring of air quality. The potential possibilities of the Cracow MP are described in the paper.