Annals of the Academy of Romanian Scientists
Edition ONLINE Physics series
ISSN 2066-8589 Volume **1**, Number **1**/**2009**

NUCLEAR AND RELATED ANALYTICAL METHOD APPLIED IN ENVIRONMENT: PIXE

I.V. POPESCU[1,2,3], G. DIMA[2], A. GHEBOIANU[2], C. STIHI[2], C. OROS[2], S. DINU[2], T. BĂDICĂ[3]

Abstract. *Nuclear Analytical Methods (NAM) can be used for research activities on environmental studies like water quality assessment, pesticide residues, global climatic change (transboundary), pollution and remediation. Prominent features of NAMs are sensitivity, selectivity, multielement determination and linearity of the calibration function. In this article we present one analytical PIXE and her applications in trace elements analysis on fountain water, aerosol, and mosses samples.*

Keywords: environment, method PIXE, pollution, *Mnium undulatum* Dambovita

1. Introduction

With a particular NAM we can made research activities on environmental studies like water quality assessment, pesticide residues, global climatic change (transboundary), pollution and remediation. Prominent features of NAMs are sensitivity, selectivity, multielement determination and linearity of the calibration function covering a concentration range of several orders of magnitude. Moreover, ion beam techniques allow depth profiling with nm-resolution in several cases while the ion microprobe additionally offers a lateral resolution in the wm-scale. As NAMs require expensive apparatus (nuclear reactor, accelerator in radioactive control areas) their availability is restricted to a small number of suitably equipped institutes. However, they are able to solve complex analytical tasks, take part in key comparisons and play an essential role in the certification of reference materials. Many fields like the biology and environment, use for solving different problems, the results of researches obtained by a series of methods of analysis and techniques of high and ultra-high sensibility, including profile methods.

2. Experimental method

The type of spectroscopy depends on the physical quantity measured. Normally, the quantity that is measured is an intensity, either of energy absorbed or produced. Electromagnetic spectroscopy involves interactions of matter with electromagnetic radiation, such as light. Electron spectroscopy involves interactions with electron beams. Auger spectroscopy involves inducing the Auger

[1]Academy of Romanian Scientists.
[2]Valahia University of Targoviste, Sciences Department.
[3]Institute of Physics and Nuclear Engineering, Bucharest, Măgurele.