VII Encontro Sul-Americano de Colisões Inelásticas na Matéria

Gramado, RS, Brasil
27 a 30 de outubro de 2014

Livro de Resumos

Laboratório de
Implantação Iônica

Instituto de Física - UFRGS

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Porto Alegre
2014

UFRGS – Instituto de Física

Ficha catalográfica elaborada pela Biblioteca Professora Ruth de Souza Schneider

E562 Encontro Sul-Americano de Colisões Inelásticas na Matéria (7. : 2014 : Gramado, RS).

Livro de Resumos VII Encontro Sul-Americano de Colisões Inelásticas na Matéria [recurso eletrônico] / Organizadores: Raul Carlos Fadanelli Filho, Pedro Luis Grande. – Porto Alegre : UFRGS - Instituto de Física, 2014.

Modo de acesso:
<http://www.if.ufrgs.br/~grande/VIIESCIM.pdf>
ISBN 978-85-64948-12-9

1. Implantação de íons. 2. Feixes de íons. I. Fadanelli Filho, Raul Carlos. II. Grande, Pedro Luis. III. Título

Biomonitoring and Toxicology Studies with PIXE

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As the infrastructure of transport and telecommunications improved in the last 20 years, the use of the term "Globalization" transcended its original meaning of international integration and brought awareness of several important issues to our present society. Since then, environmental pollution has become a major concern worldwide as it affects ecosystems with direct impact on the food chain and on the quality of life. Pollution can lead to higher accumulation of some elements present in living organisms, causing toxicological effects at the cellular level with possible implications for complex organic structures. A reliable way to monitor changes in the ecosystems due to anthropogenic activities is to study the fauna and/or flora from that ecosystem and compare it with the same species from unaffected or pristine areas.

The PIXE (Particle-Induced X-ray Emission) technique is characterized by several attractive features including multi-elemental capability, good sensitivity and relative simple sample preparation protocols. PIXE plays a major role in several fields of knowledge, and when combined with other techniques can provide support for a more consistent evaluation of the problems under study.
In this talk it will be shown how PIXE can contribute to the fields of toxicology and biomonitoring in an easy and straightforward manner. In particular, several examples representing different ecosystems and situations will be discussed.