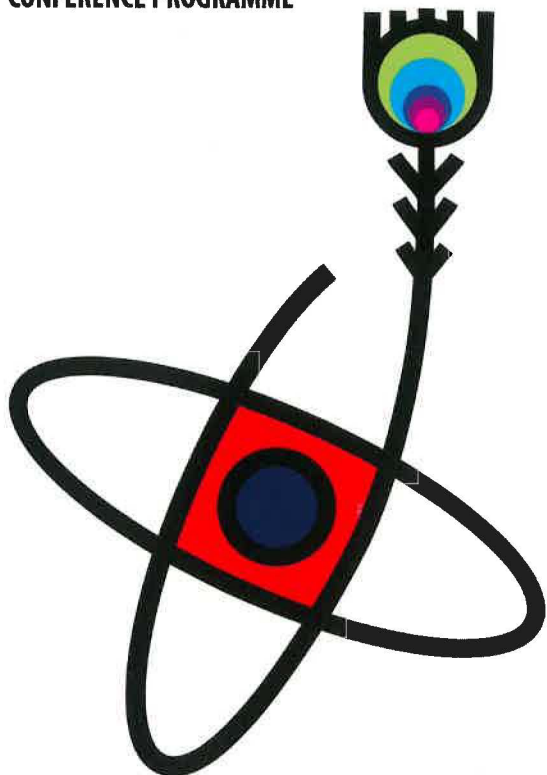


NUTECH-2017

International Conference on Developments
and Applications of Nuclear Technologies
Kraków, 10-13 September 2017

CONFERENCE PROGRAMME



www.nutech-2017.agh.edu.pl



11:20-11:40	TIME-SCALE DISCRIMINATION AND CHARACTERIZATION OF NEUTRON AND GAMMA SIGNALS USING NONNEGATIVE MATRIX FACTORIZATION OF STILBENE ORGANIC SCINTILLATOR'S OUTPUTS <i>H. Arahmane, El-Mehdi Hamzaoui, R. Cherkaoui El Moursli</i>
11:40-12:00	TECHNETIUM-99M AND BARIUM-137M SIGNALS SEPARATION AND RETRIEVAL IN INDUSTRIAL RADIO-TRACER APPLICATION LABORATORY <i>H. Kasban, H. Arafa</i>
12:00-12:20	PREPARATION OF EPOXY RESIN BASED- GAMMA RAY SOURCE FROM 152EU AND THEIR CHARACTERIZATION USING EFFICIENCY TRANSFER FUNCTIONS IMPLEMENTED IN ANGLE 4 AND MEFFTRAN <i>H. Yücel, S. Zümrüt, R. Bora Narıtturk, G. Gedik</i>
12:20-12:40	THE SETTING UP OF THE CENTER FOR RESEARCH AND DEVELOPMENT IN NUCLEAR TECHNOLOGY IN BOLIVIA <i>J. C. Ramirez-Perez</i>
12:30-14:00	LUNCH BREAK
Session VII – Radiation Chemistry and Industrial Applications Chairman: Gustavo HC Varca Auditorium A, Building D-10, first floor	
14:00-14:20	RADIOISOTOPES IN INDUSTRIAL AND ENVIRONMENTAL STUDIES <i>A. G. Chmielewski</i>
14:20-14:40	COMPARATIVE STUDY BETWEEN STANNOUS CHLORIDE AND SODIUM BOROHYDRIDE AS A REDUCING AGENTS FOR THE RADIOLABELING OF 2,3,7,8,12,13,17,18-OCTAETHYL-21H,23H-PORPHINE WITH TECHNETIUM-99M FOR TUMOR IMAGING <i>M. Motaleb, I. Ibrahim, M. Sanad, E. Saad, M. Gizawy</i>
14:40-15:00	RADIATION INDUCED GRAFT-COPOLYMERIZATION OF ACRYLIC ACID-CO- GLYCIDYL METHACRYLATE ONTO LOW DENSITY POLYETHYLENE SHEETS FOR COVALENT IMMOBILIZATION OF UREASE <i>H. Mohamed, N. Badawy, M. F. Amin, A. Sayed</i>
15:00-15:20	IONIZING RADIATION FOR FOOD PRESERVATION PROCESSING: LESS OR IN EXCESS? <i>A. L. Antonio, I. C. F. R. Ferreira, P. M. P. Santos, S. Cabo Verde</i>
15:20-15:40	COFFEE BREAK
Session VIII – Radiation Chemistry and Industrial Applications Chairman: Wojciech Migdał Auditorium A, Building D-10, first floor	
15:40-16:00	CONVERSION OF NATURAL POLYMERS TO MONOCYCLIC COMPOUNDS <i>A. Ponomarev, E. Kholodkova, Y. Pavlov, S. Skiba</i>
16:00-16:20	ACCIDENT TOLERANT MATERIALS IDEAS AND PERSPECTIVES <i>B. Sartowska, W. Starosta</i>
16:20-16:40	DETERMINATION OF OPTIMUM PARAMETERS FOR 241AM ALPHA SOURCE PREPARATION BY ELECTRODEPOSITION METHOD <i>H. Yücel, G. Cakal, R. Guven, S. Limon</i>
16:40-17:00	THE EFFECT OF IONISING RADIATION ON THE STARCH-PVA-NANOCELLULOSE FILMS FORESEEN FOR PACKAGING APPLICATION. ACTIVE FOOD PACKAGING <i>K. Cieśla, A. Abramowska, J. Drewnik, W. Gluszewski, M. Grabowska</i>
17:00-17:20	PROTEIN CROSSLINKING ONTO GOLD NANOPARTICLES BY GAMMA RADIATION <i>G. Hc Varca, Janaína AG Barros, Jorge G.S. Batista, R. Sasounian, G. T. M. Silva, V. M. Zamarion, K.V. Katti, Ademar B.</i>
17:20-17:40	DESTRUCTION OF AMPHETAMINE IN AQUEOUS SOLUTION USING GAMMA IRRADIATION <i>T. S. Alkhuraiji, A-W Ajlouni</i>
17:40-19:00	POSTER SESSION ROOMS 108 & 123 List of poster presentations can be found in Poster.pdf file

Ionizing radiation for food preservation processing: less or in excess?

Amílcar L. Antonio^{1,*}, Isabel C.F.R. Ferreira¹, Pedro M. P. Santos², Sandra Cabo Verde²

¹ CIMO, ESA, Instituto Politécnico de Bragança, Portugal.

² C2TN, IST, Universidade de Lisboa, Portugal.

Keywords: Food preservation; ionizing irradiations; physical; chemical; bioactives

ABSTRACT

The industrial use of ionizing radiations, such as gamma and electron beam (e-beam) radiation, is regulated and authorized by international organizations (EU, EFSA, IAEA, FAO, WHO) for several purposes: medical devices sterilization, materials modification, heritage preservation and food decontamination. However, there is mistrust among the general public regarding food irradiation due to the wrong association with an induced radioactivity on the product. Therefore, several obstacles have to be overcome in order to promote food irradiation as a safe and useful application of ionizing radiations. The increasing demand for safe and healthy food is another issue that could help to promote the use of these technologies. In Europe, the preservation of food by irradiation is strongly regulated but is still not very popular, in spite of several food safety issues, such as pathogens contamination or insects' infestation that could be easily solved by an environment friendly technology, without the use of chemical fumigants. We will present briefly the recent state-of-art of food irradiation research in Portugal, selecting the main results of three collaborative projects funded by national and international agencies, regarding the effects of gamma radiation on physical and chemical parameters of selected materials: fruits, vegetables and mushrooms, toward the objective to keep the focus on this valuable tool for food processing.

Acknowledgments

To the Projects/Agencies that supported this research: Portuguese Government and E.U. funds: PRODER/FEADER/EU (AROMAP Project); Foundation for Science and Technology (FCT, Portugal) for financial support to CIMO (PEst-OE/AGR/UI0690/2014), and C2TN (RECI/AAG-TEC/0400/2012 and UID/Multi/04349/2013 projects); International Atomic Energy Agency (IAEA) Coordinated Research Project CRP-D6-RC-1163.2 and IAEA Research contract 19220.

*corresponding author: amilcar@ipb.pt