MINISTERIO
DE ECONOMÍA
Y COMPETITIVIDAD

Ciemat
Centro de Investigaciones
Energéticas, Medioambientales
y Tecnológicas

LABORATORIO DE METROLOGÍA DE RADIACIONES IONIZANTES, CIEMAT

Report to the 22th Meeting of Section II, CCRII, Paris, June 2013

June 2011 to May 2013

STAFF

5 Researchers, 3 Laboratory assistants.

MAIN ACTIVITIES

- Participation in the Scientific Committees of the ICRM'2011 and ICRM'2013 conferences.
- Vicepresidency of ICRM (Since 2012)
- Standardization of ^{68}Ga.
- Measurement of the Half-life of ^{68}Ga.
- Standardization of ^{113}Sn and submission of an ampoule to SIR.
- Measurement of ^{238}U alpha-particle emission probabilities (in the frame of the Metrofission project)
- Development of an interface between the NUCLEIDE database and the Monte Carlo code PENELOPE (In cooperation with LNHB and Univ. of Barcelona).
- Implementation of digital acquisition systems in gamma spectrometry with Ge detectors, $4\pi\gamma$ measurements (both at preamplifier level), and $4\pi\beta-\gamma$ coincidences. Development of specific software for spectroscopy, coincidence and half-life measurement purposes.
- Standardization and distribution of a reference cocktail of gamma emitters to laboratories measuring low levels of activity
- Standardization and distribution of reference liquid sources containing a mixture of alpha, beta and gamma emitters to control laboratories of Spanish Nuclear Power Plants
- Solid and liquid reference sources (alpha, beta, gamma emitters) distributed on request.
- Calibration of activimeters (mainly for ^{18}F and ^{99m}Tc) at CIEMAT laboratory or by a postal system
- Calibration of surface contamination monitors.
- Since September 2012, the gamma spectrometry and absolute measurements laboratories are being fully renewed.

CORREO ELECTRÓNICO
e.garciatorano@ciemat.es

AVENIDA COMPLUTENSE, 22
28040 - MADRID
TLF: 91 3466225
FAX: 91 3466442

FUNDED RESEARCH PROJECTS

EUROPEAN METROLOGY RESEARCH PROGRAMME

MetroMetal. Ionizing Radiation Metrology for Metallurgical Industry (Coordinated by CIEMAT, started in December 2011).

MetroRWM. "Metrology for radioactive waste management" (Coordinated by CMI, started in 2011).

MetroFission. "Metrology for new generation nuclear power plants" (Coordinated by NPL, started in 2010)

OTHERS

PUBLICATIONS

June 2011- May 2013

Jaroslav Solc, Petr Kovar, Jiri Suran, Virginia Peyres, Eduardo García-Toraño "Optimization of a measurement facility for radioactive waste free release by Monte Carlo simulation", submitted for publication in *Appl. Radiat. and Isotopes*

Eduardo García-Toraño *, Virginia Peyrés Medina, Eduardo Romero and Miguel Roteta Measurement of the Half-life-of ^{68}Ga", submitted for publication in *Appl. Radiat. and Isotopes*

Miguel Roteta, Virginia Peyres, Eduardo García-Toraño, Standardization of Sn-113, submitted for publication in *Appl. Radiat. and Isotopes*

F J Maringer, J Šuráň, P Kovář, B Chauvenet, V Peyres, E García-Toraño, M L Cozzella, P De Felice, B Vodenik, M Hult, U Rosengård, M Merimaa, L Szücs, C Jeffery, J C J Dean, Z Tymiński, D Arnold, R Hinca, G Mirescu "*Applied Radiation and Isotopes*, *In Press, Available online 23 March 2013*

Viktor Jobbagy, M. Teresa Crespo, Raf Van Ammel, Maria Marouli, Andre Moens, Stefaan Pomme, Eduardo Garcia-Toraño, Preparation of high-resolution ^{238}U α-sources by electrodeposition: a comprehensive study, J Radioanal Nucl Chem DOI 10.1007/s10967-013-2444-8. *Available online 23 February 2013*

Miguel Roteta, Virginia Peyres, Leonor Rodríguez Barquero, Eduardo García-Toraño, Pablo

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Arenillas, Christian Balpardo, Darío Rodrígues, Roberto Llovera, *Appl. Radiat. and Isotopes Volume 70, Issue 9*, *September 2012*, *Pages 2006-2011*

Viktor Jobbagy, M. Teresa Crespo, Raf Van Ammel, Maria Marouli, Andre Moens, Stefaan Pomme, Eduardo Garcia-Toraño, *Proceedings of the 2nd IMEKO TC 11 International Symposium: Metrological Infrastructure. Zagreb (Croatia): MetrologyConsulting; 2011.*

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