

2011 Report of the ICRM Gamma-Ray Spectrometry Working Group

The Gamma-Ray Spectrometry Working Group is devoted to the development of the metrological aspects of gamma-ray spectrometry and its applications. This includes, but is not restricted to: measurement techniques and equipment, determination of photon emission intensities, detector efficiency calibrations, coincidence-summing corrections, uncertainties, correlations, new instrumentation and X-ray spectrometry.

1. On-going actions

1.1 Coincidence summing exercise

Since the last report, the main study of the ICRM GSWG focused on the second part of the intercomparison of methods for computing coincidence summing corrections, dedicated to volume sources. Sixteen laboratories participated in this second part and provided 23 series of results using different methods (numerical computation, Monte Carlo simulation, empirical methods,) that were discussed during a dedicated workshop. Contrarily to the results of the first part, the second ones largely scattered and complementary investigations were needed. Four papers related to this action were presented during the ICRM2011 conference. An exhaustive report including results of both steps of the exercise should be published within the next few months.

1.2 Detection limit- Decision threshold

Some discussions were held during the ICRM2009 business meeting and it was pointed out that the update of the ISO11929 standard should be taken into account. It was proposed to have a “sub-working group” dedicated to this specific aspect. P. De Felice and A. Luca volunteered to take care for this topic. The output should be a short document (basic guide) with practical recommendations and simple application examples.

2. Working Group meetings

2.1 Intermediate meeting

A 2-days workshop was hosted by ENEA Casaccia (Italy) on October 18-19, 2010. Twenty one participants attended this workshop that was mainly dedicated to the coincidence summing action, and gave also the opportunity to discuss different topics that could be of interest for future actions.

2.2 Business meeting

The most recent Gamma Spectrometry Working Group business meeting was held in Tsukuba on September 29th, 2011 as part of the ICRM2011 conference. About 50 participants attended the meeting and the agenda included the WG activity report, short presentations and proposals for further actions.

3. GS WG Web site

The web page dedicated to the Gamma Spectrometry WG is hosted by LNHB at the address: http://www.nucleide.org/ICRM_GSWG.htm. Information concerning the working group actions is available there. The information has been updated on March 2011. New material includes information about available software for efficiency transfer and coincidence summing, and files used for training purpose on the same topics.

4. GS WG forum

The GSWG forum (address: http://laraweb.free.fr/GRS_forum/) has been created on mid-2006, at the request of some members of the ICRM GSWG. The initial goal was to facilitate exchanges among the working group members and was extended to external users. On September 2011, the forum had 78 registered members; unfortunately there are still too few exchanges. ICRM GSWG members are invited to contribute to this forum, to post new topics or reply to questions already asked.

5. Further projects

Different projects have been proposed during the last WG meeting:

- Coincidence summing: further step to distinguish the contribution of coincidence summing effect from the self-attenuation one, proposed by Pr O. Sima during the WG meeting.
- New instrumental possibilities using digital signal processing.
- Low-energy calibration – peak processing (tailing due to scattering in volume sources).

Marie-Christine Lépy, Coordinator
LNE-Laboratoire National Henri Becquerel
CEA Saclay – BC 111
91191 GIF-SUR-YVETTE Cedex
FRANCE
Tel : +33.1.69.08.24.48
Fax : +33.1.69.08.26.19
E-mail : marie-christine.lepy@cea.fr