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GammaSpec 2016 Proceedings

Elisabeth Strålberg¹
Trygve Bjerk¹
Sven P. Nielsen²
Henrik Ramebäck³
Roy Pöllänen⁴
Gísli Jónsson⁵

¹Institute for Energy Technology (IFE)
²Center for Nuclear Technologies (DTU Nutech)
³Swedish Defence Research Agency (FOI)
⁴Radiation and Nuclear Safety Authority (STUK)
⁵Icelandic Radiation Safety Authority (IRSA)

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Abstract

The GammaSpec seminar took place in Rømskog, Norway, during 13-14 September 2016. A total of 37 persons from 20 organisations were present. The participants were a mixture of scientists from universities as well as users from industry and authorities. There were 3 lectures by invited speakers and presentations from 11 participants including two commercial companies (Gammadata and Canberra). Topics covered a variety of issues including new technologies (list mode data acquisition), nuclide data and calibration, accuracy and precision. Feedback from the participants was positive and the participants look forward to future NKS seminars on gamma spectrometry.

Key words

Gamma spectrometry

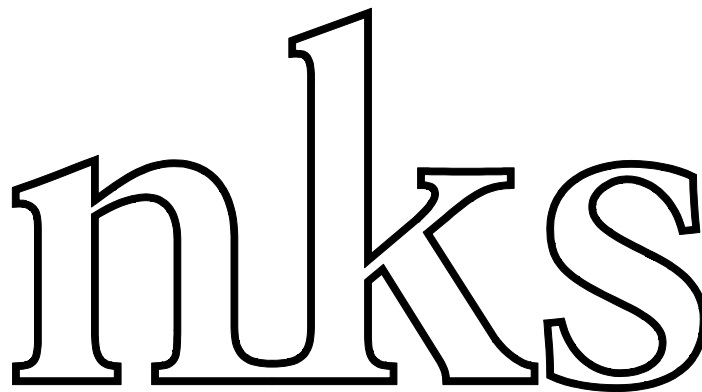
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NKS Secretariat
P.O. Box 49
DK - 4000 Roskilde, Denmark
Phone +45 4677 4041
www.nks.org
e-mail nks@nks.org

GammaSpec 2016 Proceedings

Seminar for users of gamma-ray spectrometry

Rømskog, Norway,
13-14 September 2016



Elisabeth Strålberg, Trygve Bjerk, Sven P. Nielsen, Henrik Ramebäck, Roy Pöllänen and
Gísli Jónsson



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Introduction

After sparse interaction during many years between practitioners in gamma ray spectrometry in the Nordic countries, an NKS activity was started in 2009 focussing on seminars relevant to gamma spectrometry. Three follow-up seminars were held in 2010, 2011 and 2012. The latest seminars were held at FOI, Sweden and STUK, Finland in 2013 and 2014 respectively.

The feedback from participants has been positive through all these years, and a great interest for future seminars has been expressed amongst the participants. However, the organisers chose not to arrange a seminar in 2015. Therefore, the seminar in 2016 was even more appreciated.

GammaSpec 2016

At the 2016 GammaSpec meeting 37 persons from 20 organisations were present. The participants were a good mixture of scientists from universities as well as users from industry and authorities. Invited lectures were

- Harri Toivonen (PhD), CEO at HT Nuclear, who has been involved in nuclear measurements and analyses since 1976. In his talk *List-mode Data Acquisition – a New IEC Standard*, he gave an introduction to list-mode data acquisition, a step forward to standardize data acquisition and to improve radionuclide detection quality and timeliness. This new technology is expected to become commercially available in 3-4 years.
- Dr. Tim Vidmar, SCK-CEN, Mol, Belgium, who gave two presentations:
 - *A tool for importing DDEP decay data into Genie 2000 and GammaVision nuclide libraries*
 - *A new user interface for EFFTRAN - demonstration and feedback*
- Dr. Henrik Ramebäck, FOI, Sweden, who gave a presentation about true coincidence corrections in gamma spectrometric measurements of uranium isotopic ratios (*Gamma spectrometric measurements of uranium isotopic composition: -Accuracy and precision*). Not taking this into account can lead serious errors in calculated enrichment.

There were seven additional presentations from participants:

- Asser Nyander Poulsen, Sundhedsstyrelsen, Strålebeskyttelse, Denmark: *Quality assurance of a characterised Ge-detector used for various geometries (mathematical efficiency calibration)*
- Jani Turunen, STUK, Finland: *CTBT-laboratory activities at STUK*
- Sofia Jonsson, FOI, Sweden: *An approach for calibration of a new HPGe-detector*
- Roy Pöllänen, STUK, Finland: *Gamma-ray spectrometry in STUK - Status, applications, development*
- Per Roos, DTU Nutech, Denmark: *Analysis of gamma emitters in a target foil from a low energy cyclotron*
- Nikola Marković, DTU Nutech, Denmark: *First results of gamma-gamma coincidence measurements*

- Sven Nielsen, DTU Nutech, Denmark: *Gamma spectrometry at DTU Nutech*

Also, two presentations were given summing up the results from the two intercomparison exercises that had been sent out to the participants before the seminar:

- Henrik Ramebäck, FOI, Sweden, and Trygve Bjerk, IFE, Norway: *Analysis of a gamma spectrum: Identification and evaluation*
- Henrik Ramebäck, FOI, Sweden: *Qualitative peak identification exercise and intercomparison sample*

Towards the end of the seminar, the two companies Canberra and Gammadata gave one presentation each of new development/equipment available on the market:

- Michel Ceuppens, Canberra: *New SAGeWell detector design*
- Stefan Isaksson, Gammadata: *News from Gammadata*

All presentations have been made available at the GammaWiki web site (https://www.gr.is/wiki/GammaWiki/index.php/GammaSpec_2016).

The overall feedback from participants was positive, and included:

- *“Intercomparison exercise was very useful and I hope that there will be more similar intercomparisons in the future.”*
- *“Inspired to do improvements at home (work 😊).”*
- *“Interesting presentations and valuable to meet people working with γ -spectroscopy in other application areas (not only nuclear power plants).”*
- *“Overall I really appreciate the seminar and taking benefit of all the expertise of the community.”*
- *“GREAT! Really interesting and very fun and educational to meet colleagues with similar problems, challenges and solutions.”*
- *“Presentations also gave some new ideas and interesting info. The programme was well balanced and I learned a lot. It was also an excellent forum for networking.”*
- *“It’s a great seminar. I would love to participate again, - not only because of the location 😊”*

All participants are looking forward to future events.

Appendix 1 – List of participants

Name	Affiliation
Abigail Barker	Uppsala University
Anders Læssøe	Dansk Dekommissionering
Andrey Sergeevich Volynkin	Institute of Marine Research
Anna Banel	Institutt for energiteknikk
Anneli Brink	OKG
Ann-Helen Haugen	Institute for Energy Technology
Asser Nyander Poulsen	Sundhedsstyrelsen, Strålebeskyttelse
David Mendes	CANBERRA
Eirik Gundersen	Gammadata Norge
Elisabeth Strålberg	Institute for Energy Technology
Eva Henell	OKG
Gísli Jónsson	Icelandic Radiation Safety Authority
Harri Toivonen	HT Nuclear Ltd
Henrik Ramebäck	Swedish Defence Research Agency
Henrik Roed	Danish Health Authority, Radiation Protection (SIS)
Jani Turunen	STUK
Kent Sletten	Ringhals AB
Kjartan Guðnason	IRSA
Lina Ekerljung	Forsmark kraftgrupp AB
Linda Corneliussen	Ringhals AB
Michel Ceuppens	Canberra
Miia Lampén	Fortum, Loviisa NPP
Nikola Markovic	DTU Nutech
Olof Gottfridsson	Ringhals AB
Per Roos	Centre for nuclear technologies, Technical University of Denmark
Petri Hovi	Teollisuuden Voima Oyj
Quang Le	Dansk Dekommissionering

Roy Pöllänen	STUK - Radiation and Nuclear Safety Authority
Satu Rautio	Fortum, Loviisa NPP
Sofia Jonsson	FOI Department for CBRN Defence and Security
Sofie Englund	OKG
Stefan Isaksson	Gammadata Instrument AB
Stefan Willnauer	Ages Linz
Sven Nielsen	DTU Nutech
Tim Vidmar	SCK.CEN, Belgian Nuclear Research Centre
Trygve Bjerk	IFE
Vesa-Pekka Varti	STUK

Appendix 2 – Seminar Programme

Date	Start	End	Speaker	Title
13-Sep	08:45	09:00	Registration	
	09:00	09:15	Elisabeth Strålberg Institute for Energy Technology, NO	Opening and practical information
	09:15	10:15	Harri Toivonen HT Nuclear Ltd, FI	List-mode data acquisition a new IEC standard
	10:15	10:45	Coffee break	
	11:00	11:15	Tim Vidmar SCK-CEN, Belgian Nuclear Research Centre, BE	A tool for importing DDEP decay data into Genie 2000 and GammaVision nuclide libraries
	11:15	11:30	Tim Vidmar SCK-CEN, Belgian Nuclear Research Centre, BE	A new user interface for EFFTRAN - demonstration and feedback
	11:30	12:00	Henrik Ramebäck Swedish Defence Research Agency, SE	Gamma spectrometric measurements of uranium isotopic composition: - Accuracy and precision
	12:00	13:00	Lunch	
	13:00	13:30	Asser Nyander Poulsen, Sundhedsstyrelsen, Strålebeskyttelse, DK	Quality assurance of a characterised Ge-detector used for various geometries (mathematical efficiency calibration)
	13:30	14:00	Jani Turunen STUK, FI	CTBT-laboratory activities in STUK
	15:00	15:30	Sofia Jonsson Swedish Defence Research Agency, SE	An approach for calibration of a new HPGe-detector
	15:30	16:00	Coffee break	
	16:00	16:30	Roy Pöllänen STUK, FI	Gamma-ray spectrometry in STUK - Status, applications, development
	16:30	17:00	Per Roos DTU Nutech, DK	Analysis of gamma emitters in a target foil from a low energy cyclotron
	17:00	17:30	Nikola Marković DTU Nutech, DK	First results of gamma-gamma coincidence measurements
17:30	18:00	Sven Nielsen DTU Nutech, DK	Gamma spectrometry at DTU Nutech	
19:00		Seminar dinner		
14-Sep	09:00	10:00	Henrik Ramebäck (FOI) and Trygve Bjerk (IFE)	Analysis of a gamma spectrum: Identification and evaluation

10:00	10:30	Henrik Ramebäck Swedish Defence Research Agency, SE	Qualitative peak identification exercise and intercomparison sample
10:30	11:00	Coffee break	
11:00	11:30	Michel Ceuppens Canberra	New SAGeWell detector design, Canberra
11:30	12:00	Stefan Isaksson Gammadata	News from Gammadata
12:00	13:00	Lunch	
13:00	14:15	Participant feedback survey	
14:15	15:00	Round table discussion: Seminar round up and future gamma spectrometry meetings	
15:00		End of Seminar	
15:10		Departure from Rømskog Spa	

Seminar Picture



Figure 1. Seminar participants at Rømskog.

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Affiliation(s)	¹ Institute for Energy Technology (IFE), ² Center for Nuclear Technologies (DTU Nutech), ³ Swedish Defence Research Agency (FOI), ⁴ Radiation and Nuclear Safety Authority (STUK), ⁵ Icelandic Radiation Safety Authority (IRSA)
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