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Nordic nuclear safety research

Gammaskill 2023 Programme

September 26, 2023
Training Event

8:30 – 9:00	Registration
9:00 – 9:15	Introduction and practical information **Roy Pöllänen, STUK**
9:15 – 10:00	Gamma-ray spectrometry basics #1: What are gamma-rays and how can we measure them? **Invited lecturer Alexander Mauring, IFE**
10:00 – 10:30	Coffee break Served in conference lobby
10:30 – 11:15	Gamma-ray spectrometry basics #2: Gamma spectrum analysis and activity calculations **Invited lecturer Alexander Mauring, IFE**
11:15 – 11:30	Break
11:30 – 11:45	Summary of the gamma-ray spectrometry measurement and analysis process from A to Z **Invited lecturer Alexander Mauring, IFE**
11:45 – 12:15	Practice exercises on basics of gamma-ray spectrometry **Invited lecturer Alexander Mauring, IFE**
12:15 – 13:30	Lunch break Self-paid lunch at Restaurant Hella
13:30 – 13:40	Exercise solutions and results **Invited lecturer Alexander Mauring, IFE**
13:40 – 14:30	Detector efficiency calibration basics **Invited lecturer Guillaume Lutter, DTU**
14:30 – 15:00	Coffee break Served in conference lobby
15:00 – 15:45	Uncertainty calculations and results reporting **Invited lecturer Henrik Ramebäck, FOI**
15:45 – 16:00	Break
16:00 – 16:30	Application of gamma-ray spectrometry in a nuclear power plant **Invited lecturer Laura Togneri, STUK**
16:30 – 16:45	Summary, feedback and closing

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September 27, 2023
First day of the Seminar

8:30 – 9:00	Registration
9:00 – 9:15	Opening and practical information **Roy Pöllänen, STUK**
9:15 – 9:45	Challenges in NORM analysis by gamma spectrometry: the PT2022 spectrum exercise from a spiked soil as a case study (MS-Teams) **Invited lecturer Barbara Nadalut, IAEA**
9:45 – 10:05	NKS TEMEDET: Gamma Spectra After Nuclear Weapons Detonations **Mark Dowdall, DSA**
10:05 – 10:40	Coffee break Served in the seminar lobby
10:40 – 11:00	Measuring mass attenuation coefficients for materials with unknown composition by performing transmission measurements with a HPGe detector for X-rays and low-energy gamma rays **Leen Verheyen, SCK·CEN**
11:00 – 11:20	Identification of gamma-ray emitting radionuclides using a mixture of experts (MS-Teams) **Abedelkader Helwan, LiU**
11:20 – 11:30	Radioisotope Tracing Techniques for Beryllium and REE Leaching **Leonard Rahn, University of Oslo**
11:30 – 11:50	Break
11:50 – 12:10	Experiences with accreditation of variable-geometry gamma spectrometry **Asser Nyander Poulsen, SST**
12:10 – 12:20	Resolving of Ra-224 (241 keV gamma-ray) from Pb-212 (238 keV gamma-ray) **Hans Vigeland Lerum, Oncoinvent**
12:20 – 12:30	Establishing gamma-ray laboratory at IFE **Invited lecturer Alexander Mauring, IFE**
12:30 – 13:40	Lunch break Self-paid lunch at Restaurant Hella
13:40 – 14:00	STUK's new gamma-ray laboratory **Roy Pöllänen, STUK**

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14:00 – 15:20	Visit to STUK's laboratories: 1) Remote expert support, 2) Gamma-ray laboratory, 3) Whole body counting, 4) Field laboratory SONNI
15:20 – 15:50	Coffee break Served in the seminar lobby
15:50 – 16:10	Novel in-field technologies for source localization **Harri Toivonen, HT Nuclear**
16:10 – 16:30	Hidex HPGe sample changer **Juhani Mehto, Pagode Oy**
18:00 – 22:00	Dinner at Finnish Science Centre Heureka

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September 28, 2023
Second day of the Seminar

9:00 – 9:30	Full energy peak efficiency using Monte Carlo simulations: principles **Invited lecturer Guillaume Lutter, DTU**
9:30 – 9:50	Improvement of gamma efficiency curves by maximizing the number of data-points **Kocsonya András, EK-CER**
9:50 – 10:20	Coffee break Served in the seminar lobby
10:20 – 11:00	Uncertainty calculation (GUMUF and MC) and calculation of critical limits **Invited lecturer Henrik Ramebäck, FOI**
11:00 – 11:20	Improving the accuracy of uncertainty calculations with Genie 4.0 **Eric Tischenbach, Mirion Technologies**
11:20 – 11:40	Break
11:40 – 12:00	Development of an alpha/beta-gamma coincidence system **Nissim Sagi, SNRC**
12:00 – 12:10	Development of measurement systems at STUK's gamma ray laboratory **Jani Turunen, STUK**
12:10 – 12:20	Detector development at the Detector Laboratory of HIP **Timo Hildén, HIP**
12:20 – 12:30	Principal component analysis in anomaly detection **Ellinoora Vikman, STUK**
12:30 – 13:40	Lunch break Self-paid lunch at Restaurant Hella
13:40 – 14:00	Gamma-ray signals in neutron activation analysis **Sakari Ihantola, NeutronGate**
14:00 – 14:20	Non-destructive assay of spent nuclear fuel with Passive Gamma Emission Tomography (PGET) **Riina Virta, STUK**
14:20 – 14:40	Gamma spectrometry at ESS **Nicola Markovic, ESS**
14:40 – 15:00	Summary, feedback and closing

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