



NORM X Symposium

May 9th till 13th, 2022 in the city of
Utrecht, Netherlands

<https://normx2022.com/>



Theme NORM X

25 years of NORM Symposia

Future: Residues Applied in a Circular Economy



**Phosphor gypsum applied
in ceramic panels**
Courtesy of IFA



**Winter chick pea, grown on
Phosphor gypsum fertilizer**
Courtesy of OCP Group, Morocco



**Slag from thermal phosphorus
production applied in dyke
construction**
*Courtesy of Project Organisation
Water Safety (NL)*

NORM X Symposium and Cooperating Organisations



- international and regional cooperating organisations are:
 - IAEA
 - EC
 - ICRP
 - ILO
 - IRPA
 - UNSCEAR
 - IAEA ENVIRONET
 - NVS (Dutch Society for Radiation Protection)
 - ENA (European NORM Association)
 - SHARE/RICOMET (Social science and Humanities in ionising radiation REsearch)
 - ANVS (Dutch Authority for Nuclear Safety and Radiation Protection)
 - EPA (US Environmental Protection Agency)
 - ARPANSA (Australian Radiation Protection and Nuclear Safety Agency)
 - CRCPD (US Conference of Radiation Control Program Directors)

- Associated events are:

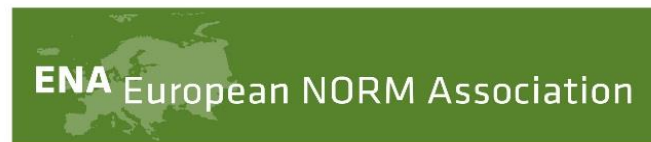
- IAEA ENVIRONET NORM project
- ENA
- SHARE/RICOMET



Dutch Society for
Radiation Protection



Network of Environmental Remediation and NORM Management
(ENVIRONET)



NORM X, Program, Main Area's – Invited speakers



Area 1: 25 years of NORM Regulation; **Peter Görts (ANVS, Netherland)**

Area 2: Fundamental and practical implementation aspects of NORM regulations; **Jelena Mrdakovic-Popic (DSA, Norway), Philip Egidi (US EPA), Miroslav Pinak (IAEA)**

Area 3: Current and future challenges – NORM in a Circular Economy; **Julian Hilton (Aleff Group), Analia Canoba (ARN, Argentina)**

Area 4: Environmental aspects of NORM; **Horst Monken-Fernandes (IAEA)**

Area 5: NORM impacted industries; **Ulric Schwela (Ta-Nb Int. Study Centre, UK)**

Area 6: NORM sampling and metrology; **Luis Ernesto Matta (IRD, Brasil)**

Area 7: Stakeholder engagement and public communication; **David Allard (NJ DEP, US), Yevgeniya Tomkiv (NMBU, Norway)**

Area 8: Research and development; **Wouter Schroeyers (University of Hasselt, Belgium)**

Area 9: NORM Transport; **Eric H. Weber (IAEA)**

NORM X, Program, Main Area's – Invited speakers



A sneak preview of the content of some invited presentations

- **Area 2: Jelena Mrdakovic-Popic.** NORM residues & aspects of circular economy – an overview from European HERCA¹⁾ perspective, Regarding the intensified international developments and tendencies to make global eco-effectiveness with transition from a linear towards a circular economy, an analysis of HERCA Member states regulatory practice on NORM residues and waste issues, together
- **Area 3: Analia Canoba.** Here is a part of the essence of her presentation: It is necessary to have a clear regulatory framework for applying a circular economy and some adaptations may be necessary. Graded approach in regulation is paramount . Practical and not contradictory regulatory frameworks should be developed to achieve a circular economy, applying proper waste management practices is fundamental to know the inventory of industries. Stakeholders and particularly the public

¹⁾HERCA – (association of the) Heads of the European Radiation Protection Authorities

NORM X, Program, Sub-specialities per Main Area



- Protection of workers, public and environment
- Legislation and regulations
- Education & Training (capacity building)
- Radon / Thoron
- Mining of ores including U and Th
- Rare earths-, Niobium-, Tantalum industry
- Zircon- and zirconia-, Titaniumdioxide industry
- Phosphate and phosphogypsum
- Oil and Gas production and geothermal industry (incl. liquid NORM)
- Coal combustion, cement-, building- and construction materials industry
- Decommissioning and Environmental remediation
- NORM Residue-and Waste management
- Miscellaneous

Refresher courses



The refresher courses are broadly grouped and scheduled into main topics:

1. Building an Operation Radiation Protection Program

- A. Tuesday 10 May. Regulatory Framework for the Safe Management of NORM - from Regulations to implementation, “*international recommendations and European requirements*”. Lecturers: **Burçin Okyar** (IAEA), **Stefan Mundigl** (EC).
- B. Wednesday 11 May. The application of the ICRP system to NORM in industrial processes: from Publication 103 to 142. Lecturers: **Analia Canoba** (ARN, Argentina) and **Jean-François Lecomte** (IRSN, France).
- C. Thursday 12 May. From fundamental safety principles to operational radiation protection programs. Lecturer: **Konstatinos Karfopoulos** (AEC, Greece)

Refresher courses (continued)



2. Public exposure from NORM discharges, assessment of environmental risks and the communication hereon.

A. Tuesday 10 May. Assessing public exposure from NORM-discharges - key parameters and simple approaches to dose estimates. Lecturer: **Christian Kunze** (IAF-Radioökologie, Germany). Organized in cooperation with **ENA**.

ENA European NORM Association

B. Wednesday 11 May. A regulators perspective on the assessment of environmental NORM risk (experiences with risk models from a user's perspective). Lecturer: **Cameron Lawrence** (ARPANSA, Australia).

C. Thursday 12 May. Applied radiological risk communication: From theory to practice. Lecturer: **Tanja Perko** (SCK•CEN, Belgium). Organized in cooperation with the **SHARE/Ricomet**.

 **SHARE**
Social sciences and Humanities in ionising radiation REsearch

RICOMET 2022
RICOMET is a conference on social science and humanities in ionising radiation research

Refresher courses (continued)



3. NORM Metrology and sampling, NORM decommission and dismantling and Safe management of waste.

A. Tuesday 10 May. NORM metrology and sampling. Lecturer: **Rafael García-Tenorio** (Univ of Seville, Spain). Organized in cooperation with **ENA**.



B. Wednesday 11 May. Decommissioning and dismantling of NORM sites: Case studies of oil/gas and water treatment facilities. Lecturers: **Mette Nilson** (DSA, Norway) and **James McCullough** (DEP, New Jersey).

C. Thursday 12 May. Workshop on the safe management of NORM residues. Lecturer: **Zhiwen Fan** (IAEA).

Refresher courses (continued)



Free participation to all refresher courses as participant of NORM X Symposium

Accreditation of all courses will be sought by ANVS (Dutch Authority for Nuclear Safety and Radiation Protection) and AAHP (American Academy of Health Physics)

See at <https://normx2022.com/refresher-courses/> for more details e.g. learning objectives, summary and literature

NORM X, Abstracts and Full Papers



The NORM X organization as well as all cooperating organizations are encouraging you to send in an abstract.

The deadline for sending in an abstract has been extended to: **1st March 2022**
You will be informed about the acceptance of your abstract **15th March 2022**
and to send in a full paper is: **15th April 2022**

You can apply for an oral presentation, a poster pitch or a poster presentation.
Each oral presentation is scheduled for 25 min (20 min presentation, 5 min Q & A)

Poster (pitch) presentation, you will be requested to send a digital copy of your poster^{*)}. The NORM X organization will have these posters printed (*free of charge*) and take care that your poster will be placed at the poster board.

^{*)} poster should be of high digital resolution, so that it may be printed on A0 (840 x 1188 mm) format paper.

Location NORM X: Utrecht, Netherlands



- Capital city of the Province Utrecht
- The city celebrates in 2022 its 900th anniversary



Location NORM X: Utrecht, Jaarbeurs (conference centre)



Supernova meeting area

- Plenary room 500 persons
- Two conference rooms of 100 persons





**Send in your
abstract and
register**

25 YEARS OF NORM SYMPOSIA

**FUTURE: RESIDUES APPLIED
IN A CIRCULAR ECONOMY**

10th International Symposium on
Naturally Occuring Radioactive Material
Utrecht, The Netherlands, May 9 - 13, 2022
www.normx2022.com

www.normx2022.com

Registration: Early bird – until February 1st

Normal – until April 1st

Last minute – after April 1st

info@normx2022.com