



NRC10: 10th INTERNATIONAL CONFERENCE ON NUCLEAR AND RADIOCHEMISTRY

Brighton, UK, 2024

Hosted by the:



PROGRAMME

PRINCIPAL SPONSORS



www.awe.co.uk



www.jacobs.com

NRC10 UK ORGANISING COMMITTEE:

Dr L Natrajan*, University of Manchester	Chair
Dr M Higginson*, AWE	Deputy Chair
Dr Sarah Wallace*, UK Environment Agency	Secretary
Dr Richard Marsh*, University of Southampton	Treasurer
Dr N Evans, Nottingham Trent University	NRC10 Conference Secretariat
D A Wickenden*, Wickenden Analytics Ltd	NRC10 Exhibition, Sponsorship and Materials

NRC10 INTERNATIONAL ADVISORY BOARD:

Professor David Read*	University of Surrey, UK
Dr Marko Štok	Jožef Stefan Institute
Professor Katherine Morris	University of Manchester, UK
Professor Frank Rösch	Johannes Gutenberg – Universität Mainz, Germany
Professor Jan John	Czech Technical University, Prague, Czech Republic
Professor Thorsen Stumpf	Helmholtz Zentrum, Dresden-Rossendorf, Germany
Professor Andreas Türlér	Universität Bern, Switzerland
Professor Thorsten Schäfer	Friedrich Schiller Universität Jena, Germany
Dr Louise Natrajan	University of Manchester, UK
Professor Christian Ekberg	Chalmers University of Technology, Sweden
Professor Xiaolin Hou	Lanzhou University, China
Professor Jon Petter Omtvedt	University of Oslo, Norway
Dr Gareth Law	University of Helsinki, Finland
Dr Václava Havlová	IAEA, Austria

*RSC – Radiochemistry Interest Group Committee

SUNDAY 25th AUGUST

12:00 – 18:00 CONFERENCE REGISTRATION OPENS

**Double Tree by Hilton Brighton Metropole Hotel and
Conference Centre**

Kings Road

Brighton

UK

BN1 2FU

The registration desk will be manned during the Conference at refreshment breaks and lunchtime. Any delegate concerns outside these times can be brought to the attention of any member of the conference organising committee.

19:00 – 21:00 Conference Ice-Breaker Drinks Reception

Clarence Room

Double Tree by Hilton Brighton Metropole Hotel

09:00 – 09:10 **NRC10 Welcome Address –**
Professor Marko Štrok EuChemS – DNRC Chair
Dr Louise Natarajan RSC – Radiochemistry Interest Group Chair

SESSION 1: ENVIRONMENTAL RADIOCHEMISTRY

Chair – Professor D Read, University of Surrey

09:15 – 09:45 **Invited Plenary Lecture:** Abstract 1
Environmental Radioactivity at the Department of Energy's Hanford Site:
Sources and Sinks.

Dr Carolyn Pearce.
Pacific Northwest National Laboratory, USA

09:45 – 10:00 **ENVIRONMENTAL 1** Abstract 2
Investigating radioactive beach finds.
Laura Newsome
Sellafield Ltd UK

10:00 – 10:15 **ENVIRONMENTAL 2** Abstract 3
Environmental Radioactivity in China – Level, distribution and source of
artificial radionuclides in marine and terrestrial environment
Xiaolin Hou
Lanzhou University, School of Nuclear Sciences and Technology, China

10:15 – 10:30 **ENVIRONMENTAL 3** Abstract 4
Influence of Al on the retention of tri-valent actinides and their
homologues on feldspar.
Jessica Lessing
Helmholtz-Zentrum Dresden-Rossendorf e.V., Institute of Resource Ecology, Germany

10:30 – 10:45 **ENVIRONMENTAL 4** Abstract 5
Investigation of the migration behaviour of I-125 using a laboratory
lysimeter with reference soil
Nils Sassenberg
Leibniz University Hannover, Institute of Radioecology and Radiation Protection,
Germany

10:45 – 11:15 **Tea And Coffee – CAMBRIDGE & DURHAM ROOMS**

SESSION 1: ENVIRONMENTAL RADIOCHEMISTRY continued

Chair – Dr Marko Strot, Jožef Stefan Institute, Slovenia

11:15 – 11:30 **ENVIRONMENTAL 5** Abstract 6
From concrete to plants: Phytoremediation of soil from German nuclear
facilities.
Tobias Blencke
Institute of Radioecology and Radiation Protection, Leibniz University Hannover,
Germany

- 11:30 – 11:45 ENVIRONMENTAL 6** Abstract 7
Anthropogenic U-236 in Artic and Antarctic moss and lichens
 Jerzy-W. Mietelski
 Henryk Niewodniczański Institute of Nuclear Physics Polish Academy of Sciences,
 Kraków, Poland
- 11:45 – 12:00 ENVIRONMENTAL 7** Abstract 8
Element and particle fractionation during the transport of Eu(III) – silicate colloids in water saturated porous media.
 Daming Zhang
 MOE Frontier Science Center for Rare Isotopes; School of Nuclear Science and Technology, Lanzhou university, China
- 12:00 – 12:15 ENVIRONMENTAL 8** Abstract 9
Vertical variation of radon activity concentration in Amazon forest.
 Paulo Sergio Cardoso Silva
 Instituto de Pesquisas Energéticas e Nucleares, São Paulo, Brazil
- 12:15 – 12:30 ENVIRONMENTAL 9** Abstract 10
Radionuclide mobility in geological formations analysed by ICP-MS and ICP-QQQ coupling methods
 Ralf Kautenburger
 WASTE group, Inorganic Solid-State Chemistry, Saarland University, Germany
- 12:30 – 12:45 ENVIRONMENTAL 10** Abstract 11
Colloids pose an enhanced transport risk of actinide in saturated porous media
 Wangsuo Wu
 MOE Frontiers Science Center for Rare Isotopes, Lanzhou University, Lanzhou 730000, China
- 12:45 – 14:00 Buffet Lunch – CAMBRIDGE & DURHAM ROOMS**

SESSION 2: ENVIRONMENTAL RADIOCHEMISTRY - SPECIATION

Chair: Professor Thorsten Stumpf, Helmholtz Zentrum, Dresden-Rossendorf, Germany

- 14:00 – 14:15 SPECIATION 1** Abstract 12
Speciation of Uranium (VI) in organic phase after extraction with a monoamide solvent. Experimental data acquisition and thermodynamic equilibrium modelling.
 Thibaut Blanc
 CEA, DES, ISEC, DMRC, Univ Montpellier, Marcoule, France
- 14:15 – 14:30 SPECIATION 2** Abstract 13
Effect of decorporation agents on the speciation of lanthanides and actinides in artificial biofluids of the human digestion system.
 A Barkleit
 Helmholtz-Zentrum Dresden-Rossendorf, Institute of Resource Ecology, Germany
- 14:30 – 14:45 SPECIATION 3** Abstract 14
Micromechanism of adsorption of strontium and cesium on different expansive clay minerals
 Junjun Hou
 School of Nuclear Science and Technology, Lanzhou University, China

- 14:45 – 15:00 SPECIATION 4** Abstract 15
Investigation of trivalent actinide and lanthanide complex speciation with cement additive PBTC.
 Anne Wollenberg
 Dresden University of Technology, Central Radionuclide Laboratory, 01062 Dresden, Germany.
- 15:00 – 15:15 SPECIATION 5** Abstract 16
Toward new macrocycle-based Ra resins.
 Illarion Dovhyi
 Triskem International, 3 rue des champs Geons, ZAC de l'Eperon, 35170 Bruz, France
- 15:15 – 15:30 SPECIATION 6** Abstract 17
Applying electrochemical methods to real-life samples for radionuclide separation.
 Martin Heule
 Department of Radiation Safety and Security, Paul Scherrer Institute, Switzerland
- 15:30 – 16:00 Tea And Coffee – CAMBRIDGE & DURHAM ROOMS**

SESSION 3: RADIOCHEMISTRY EDUCATION

Chair: Dr Mojmir Nemec, Czech Technical University in Prague, Czech Republic.

- 16:00 – 16:15 INTRODUCTION – Session Chair**
- 16:15 – 16:30 EDUCATION 1** Abstract 18
Educational activities on environmental radioactivity and medical applications of radiation at University of Milano and INFN in Italy
 Flavia Groppi
 LASA laboratory, National Institute of Nuclear Physics - INFN, Italy
- 16:30 – 16:45 EDUCATION 2** Abstract 19
Virtual labs supporting radiochemistry hands-on laboratory: the Politecnico di Milano experience.
 Maddalena Negrin
 Department of Energy, Politecnico di Milano, Milano, Italy
- 16:45 – 17:00 EDUCATION 3** Abstract 20
Open access to nuclear research infrastructures of the Joint Research Centre - A European tool for education and training.
 Alice Seibert
 European Commission, Joint Research Centre (JRC), Karlsruhe, Germany
- 19:00 - 21:00 Poster Exhibition (Session 1) with Wine and Hot-Cold Buffet**
DURHAM ROOM EXHIBITION HALL

SESSION 4: RADIOANALYTICAL CHEMISTRY

Chair: Professor Xiaolin Hou, Lanzhou University, China

- 09:00 – 09:30** **Invited Plenary Lecture:** Abstract 21
Radioanalytical chemistry in the “Anthropocene”.

Professor Andy Cundy
GAU Radioanalytical, University of Southampton, UK
- 09:30 – 09:45** **RADIOANALYSIS 1** Abstract 22
Radioanalytical determination of ²²⁵Ac and ²²⁷Ac in the presence of ²⁴³Am tracer using solid-phase extraction with ion-imprinted polymer resin.
Ruslan Cusnir
Institute of Radiation Physics, Rue du Grand-Pre 1, Lausanne CH-1007, Switzerland
- 09:45 – 10:00** **RADIOANALYSIS 2** Abstract 23
Problems and solutions to the accumulation of TODGA degradation compounds in the separation of Am by AmSel process.
Pablo Vacas-Arquero
Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas (CIEMAT). Madrid (Spain)
- 10:00 – 10:15** **RADIOANALYSIS 3** Abstract 24
Developments in the Radiochronometric Analysis of Actinide Materials for Nuclear Forensics
Matthew Higginson,
AWE Nuclear Security Technologies, UK
- 10:15 – 10:30** **RADIOANALYSIS 4** Abstract 25
Simultaneous determination of key seven radionuclide in food samples
Yanqin Ji
China CDC Key Laboratory of Radiological Protection and Nuclear Emergency, National Institute for Radiological Protection, China CDC
- 10:30– 10:45** **RADIOANALYSIS 5** Abstract 26
Determination of mixtures of radionuclides (⁸⁹Sr + ⁹⁰Sr and ⁹⁰Sr + plutonium isotopes) using PS resin in tandem.
Alex Tarancón Sanz
Department d'Enginyeria Química, Universitat de Barcelona, Spain
- 10:45 – 11:15** **Tea and Coffee – CAMBRIDGE & DURHAM ROOMS**
- 11:15 – 11:30** **RADIOANALYSIS 6** Abstract 27
Method development for simultaneous determination of ⁹³Mo, ⁹³Zr and ⁹⁴Nb in high activity steel.
Veronika Meriläinen
VTT Technical Research Centre of Finland, Finland

- 11:30 – 11:45** **RADIOANALYSIS 7** Abstract 28
Development of a technology for the analysis of tritium and other hydrogen isotopologues using Raman spectroscopy and hollow-core microstructured optical fibres.
 Anna Denman
 Jacobs Ltd, 601 Faraday Street, Birchwood Park, Warrington, Cheshire, UK
- 11:45 – 12:00** **RADIOANALYSIS 8** Abstract 29
Development of HCl-free analytical method for ⁷⁹Se in concrete rubble by ICP-MS/MS.
 Van Khoai Do
 Japan Atomic Energy Agency (JAE)
- 12:00 – 12:15** **RADIOANALYSIS 9** Abstract 30
Development of a chemical separation strategy for r-process derived radionuclides from terrestrial and lunar geological archives.
 Sebastian Fichter
 Institute of Ion Beam Physics and Materials Research, Dresden, Germany
- 12:15 – 12:30** **RADIOANALYSIS 10** Abstract 31
Enhancing the radioanalytical process through micro-fluidics: integrated separation and detection of ⁹⁰Sr in an automated microfluidic system.
 Sarah Lu
 Los Alamos National Laboratory, Bikini Atoll Rd, Los Alamos, NM, United States
- 12:30 – 13:45** **BUFFET LUNCH - CAMBRIDGE & DURHAM ROOMS**

SESSION 4: RADIOANALYTICAL CHEMISTRY continued

Chair: Dr Matt Higginson, AWE – Nuclear Security Services, UK

- 13:45 – 14:15** **RADIOANALYSIS 11** Abstract 32
Chemistry of individual micrometre-sized “hot particles”: How to measure the bioavailability of radionuclides.
 Tobias Weissenborn
 University of Hanover, Institute of Radioecology and Radiation Protection, Germany
- 14:15 – 14:30** **RADIOANALYSIS 12** Abstract 33
Intra-laboratory comparison of ¹³⁷Cs radioactivity in seawater: AMP – PAN column chromatography vs. AMP batch method.
 Jin O Lee
 Korea Institute of Nuclear Safety, ‡Korea Atomic Energy Research Institute
- 14:30 – 14:45** **RADIOANALYSIS 13** Abstract 34
Flow electrolysis for fast separation and analysis of radionuclides
 Paul Dutheil
 Department of Chemistry and Applied Biosciences, Zürich, Switzerland
- 14:45 – 15:00** **RADIOANALYSIS 14** Abstract 35
Low-level analysis of Sr-90 and transuranium elements in Austrian aerosols
 Rainer Kadan
 Austrian Agency for Health and Food Safety (AGES), Vienna, Austria

- 15:00 – 15:15 RADIOANALYSIS 15** Abstract 36
Separation and quantification method for Pd-107 in radioactive waste.
 Marina Faure
 University Paris-Saclay, CEA, Service de Physico-Chimie, F-91191, Gif-sur-Yvette
 Cedex, France
- 15:15 – 15:30 RADIOANALYSIS 16** Abstract 37
Unravelling ultra-trace lanthanide impurities in nuclear forensic evidence.
 Michael Hofstetter
 ETH Zürich, Department of Chemistry and Applied Biosciences, Switzerland
- 15:30 – 16:00 Tea and Coffee – CAMBRIDGE & DURHAM ROOMS**

SESSION 5: RADIOPHARMACEUTICAL CHEMISTRY

Chair: Professor Ulli Koester, Institut Laue-Langevin, Grenoble, France

- 16:00 – 16:15 RADIOPHARMA 1** Abstract 38
Measurements of nuclear cross-section of production of theranostic radionuclides at LASA laboratory in Italy: focus on terbium quadruplet.
 Flavia Groppi
 LASA Laboratory, Physics Department of University of Milano & INFN, Segrate (MI), Italy
- 16:15 – 16:30 RADIOPHARMA 2** Abstract 39
Modifying Strontium Hexaferrite Nanoparticles for Potential Theranostic Radiopharmaceuticals
 Gleb Aleshin
 Lomonosov Moscow State University, 119991 Leninskie Gory, 1/3, Moscow, Russian Federation
- 16:30 – 16:45 RADIOPHARMA 3** Abstract 40
Development stages of the terbium sisters for theranostics at Paul Scherrer Institute.
 Pascal Grundler
 Paul Scherrer Institute, Center for Radiopharmaceutical Sciences, Switzerland
- 16:45 – 17:00 RADIOPHARMA 4** Abstract 41
Green Synthesis and Evaluation of Pyrazolone Derivatives for Iodine-131 Lung Imaging
 Moaz M. Abdou
 Egyptian Petroleum Research Institute, Nasr City, 11727, Cairo, Egypt
- 19:00 - 21:00 Poster Exhibition (Session 2) with Wine and Hot-Cold Buffet**
DURHAM ROOM EXHIBITION HALL

SESSION 6: RADIONUCLIDE PRODUCTION

Chair: Dr Peter Ivanov, National Physical Laboratory, London, UK

09:00 – 09:30	Invited Plenary Lecture:	Abstract 42
	Production of radionuclides for medical applications	
	Dr Ulli Köster Institut Laue-Langevin, Grenoble, France	
09:30 – 09:45	RN PROD 1	Abstract 43
	Production and Identification of tailored thorium ions for fundamental physics Jonas Stricker Johannes Gutenberg-University Mainz, Mainz, Germany	
09:45 – 10:00	RN PROD 2	Abstract 44
	Development of Au-199 separation protocol from Pt irradiated targets for theranostic applications Marko Štrok Jožef Stefan Institute, Jamova cesta 39, SI-1000 Ljubljana, Slovenia	
10:00 – 10:15	RN PROD 3	Abstract 45
	Reverse-tandem scheme of generator for production of medical radionuclides. Ayagoz Baimukhanova Laboratory of Nuclear Problems, Joint Institute for Nuclear Research, Dubna, Russian Federation	
10:15 – 10:30	RN PROD 4	Abstract 46
	IMPACT-TATTOOS – novel radionuclide production in Switzerland: a design status report. Robert Eichler Laboratory of Radiochemistry, Paul Scherrer Institute, Villigen PSI, Switzerland	
10:30– 10:45	RN PROD 5	Abstract 47
	Molybdenum nanoparticles for the production of high specific activity ⁹⁹Mo by the recoil effect. Pablo Serra Crespo European Commission, Joint Research Centre (JRC), Petten, Netherlands	
10:45– 11:00	RN PROD 6	Abstract 48
	Separation of nuclear isomers: towards the design of ^{44g}Sc/^{44m}Sc radionuclide generator. Elena Kurakina Dzhelepov Laboratory of Nuclear Problems, Joint Institute for Nuclear Research, Dubna 141980, Russian Federation	
11:00 – 11:30	Tea and Coffee –CAMBRIDGE & DURHAM ROOMS	

11:30 – 11:45	RN PROD 7 Abstract 49 Production of iodine-131 using a compact fusion reactor based on multi-state fusion Erin Holland Astral Systems, Dorset Innovation Centre, Dorchester, Dorset, UK
11:45 – 12:00	RN PROD 8 Abstract 50 Development of a rapid purification method for medical radionuclides Hibaaq Mohamud National Physical Laboratory, Teddington, Middlesex, UK
12:00 – 12:15	RN PROD 9 Abstract 51 Cyclotron production and radiochemical purification of Plutonium-236. Peter Ivanov National Physical Laboratory, Teddington, Middlesex, UK
12:15 – 12:30	RN PROD 10 Abstract 52 Harvesting [⁶⁸Ga] GaCl₃ from solid and liquid targets: a versatile and high –yielding cassette-based process. Ruben Veronesi Trasis SA, Research and Development Department, Ans, Belgium
12:30 – 12:45	RN PROD 11 Abstract 53 Optimised cassette-based process for [¹⁸F] FMZ production: an outlook to generic ArylBpin radiolabelling in a GMP environment. Romaric Gerardy TRASIS, Rue Gilles Magnée 904430 Ans, Belgium
12:45 – 13:00	RN PROD 12 Abstract 54 Adjacent lanthanide separations for neutron capture cross-section measurements at the National Ignition Facility. Samantha Labb Lawrence Livermore National Laboratory, Livermore, CA 94550, USA
13:00 ONWARDS	NRC10 CONFERENCE AFTERNOON RECESS
Delegate Excursions*	Excursion 1: Arundel Castle and Gardens* https://www.arundelcastle.org/ Departs Hilton Hotel 14:30 Excursion 2: Ridgeview Vineyard Tour* https://www.ridgeview.co.uk/visit/tours-and-tastings/ Departs Hilton Hotel 14:30 <p style="text-align: center;">*Note – Tickets can be purchased on a first come first served basis at the NRC10 reception desk.</p>
Extracurricular Meetings	Clarence Room:
15:30 – 16:30	Reference Materials Discussion – “What do we need?”– hosted by AWE and NPL

SESSION 7: ACTINIDE CHEMISTRY

Chair: Dr Louise Natrajan, The University of Manchester, Manchester, UK

- 09:00 – 09:30** **Invited Plenary Lecture:** Abstract 55
- Environmental Radioactivity at Chernobyl and Fukushima: the Public Communication Disasters**
- Professor Jim Smith,**
School of the Environment, Geography and Geosciences, University of Portsmouth, UK
-
- 09:30 – 09:45** **ACTINIDE 1** Abstract 56
- Visualisation of reactive transport of plutonium in Opalinus Clay rock using synchrotron-based microimaging techniques.**
- Tobias Reich
Johannes Gutenberg-Universität Mainz, Department of Chemistry, Nuclear Chemistry, 55099 Mainz, Germany
-
- 09:45 – 10:00** **ACTINIDE 2** Abstract 57
- Thermodynamic and kinetic effects of impurities in uranium alloys**
- Bradley C Childs
Lawrence Livermore National Laboratory, Materials Science Division, USA
-
- 10:00 – 10:15** **ACTINIDE 3** Abstract 58
- Experimental Studies and Molecular Modeling of the Physico-chemical Properties of Pure Monoamides Extractants for Uranium and Plutonium Extraction.**
- Abderrazak Masmoudi
CEA, DES, ISEC, DMRC, Univ Montpellier, Marcoule, France
-
- 10:15 – 10:30** **ACTINIDE 4** Abstract 59
- Solubility of An(III) in saline solutions in presence of organic compounds.**
- Roland Meier
Karlsruhe Institute of Technology, Institute for Nuclear Waste Disposal, Karlsruhe, Germany
-
- 10:30– 10:45** **ACTINIDE 5** Abstract 60
- Reactivity of actinide mono-cations with NH₃ in gas phase: A study using ICP-MS and quantum chemistry.**
- Mathilde Goujet
CEA, DES, ISEC, DMRC, Univ. Montpellier, Marcoule, France
-
- 10:45 – 11:15** **Tea and Coffee – CAMBRIDGE & DURHAM ROOMS**
-
- 11:15 – 11:30** **ACTINIDE 6** Abstract 61
- Heterobimetallic pyridyloxy complexes of tetravalent actinides and group 10 elements.**
- Dennis Grödler
Helmholtz Zentrum Dresden-Rossendorf, Institute of Resource Ecology, Dresden, Germany

- 11:30 – 11:45 ACTINIDE 7 Abstract 62**
Synthesis, characterisation, and solubility of M-Pu(VI)-OH solid phases.
David Fellhauer
Karlsruhe Institute of Technology, Institute for Nuclear Waste Disposal, P.O. Box 3640, 76021 Karlsruhe, Germany
- 11:45 – 12:00 ACTINIDE 8 Abstract 63**
Solubility study of U(VI) with aqueous silicates and citrate in (hyper)alkaline medium ionic strength solutions.
Sarah Duckworth
Institute for Nuclear Waste Disposal (INE), Karlsruhe Institute of Technology, Karlsruhe Germany
- 12:00 – 12:15 ACTINIDE 9 Abstract 64**
Understanding the fate of Tc(IV) and U(IV) upon air-exposure.
Liam Abrahamsen-Mills
National Nuclear Laboratory, Chadwick House, Birchwood Park, Warrington, UK
- 12:15 – 12:30 ACTINIDE 10 Abstract 65**
Influence of gluconate on plutonium uptake by hardened cement paste under low and high ionic strength.
Samer Amayri
Johannes Gutenberg-Universität Mainz, Department of Chemistry, Nuclear Chemistry, Mainz, Germany
- 12:30 – 13:45 BUFFET LUNCH - CAMBRIDGE & DURHAM ROOMS**

SESSION 7: ACTINIDE CHEMISTRY continued

Chair: Professor Katherine Morris, The University of Manchester, Manchester, UK

- 13:45 – 14:15 ACTINIDE 11 Abstract 66**
Improving americium/curium separation factors in the AmSel process through symmetry lowering of the diglycolamide extractant.
Filip Kolesar
KU Leuven, Department of Chemistry, Leuven, Belgium
- 14:15 – 14:30 ACTINIDE 12 Abstract 67**
From monometallic to heterotrimetallic; a comparison on actinide complexes featuring An 8(+2)-fold coordination
Robert Gericke
Helmholtz Zentrum Dresden-Rossendorf, Institute of Resource Ecology, Dresden, Germany
- 14:30 – 14:45 ACTINIDE 13 Abstract 68**
Understanding neptunium behaviour in carbonate-containing solutions with alkaline metal and alkaline earth cations.
Tatiana Plakhova
Lomonosov Moscow State University, Leninskie Gory 1, Moscow, Russia
- 14:45 – 15:00 ACTINIDE 14 Abstract 69**
Series of isostructural bimetallic actinide complexes with the phthalimidinyl ligand.
Till Erik Sawallisch
Institute of Resource Ecology, Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany

15:00 – 15:15 **ACTINIDE 15** Abstract 70
2,6-Bis(5-(tert-butyl)-1H-pyrazol-3-yl)pyridine. Effects of the peripheral aliphatic sidechain on the coordination of actinides (III) and lanthanides (III).
Jonas Stracke
Karlsruhe Institute of Technology (KIT), Institute for Nuclear Waste Disposal (INE),
Karlsruhe, Germany

15:15 – 15:45 **Tea and Coffee – CAMBRIDGE & DURHAM ROOMS**

SESSION 8: TRANSACTINIDE CHEMISTRY

Chair: Professor Tobias Reich, Johannes Gutenberg-Universität Mainz, Germany

15:45 – 16:00 **TRANSACTINIDE 1** Abstract 71
Evaluation of the ion funnel-to-IVAC system for the rapid chemical characterisation of superheavy elements.
Georg Tiebel
Laboratory of Radiochemistry, Paul Scherrer Institut, Villigen PSI, Switzerland

16:00 – 16:15 **TRANSACTINIDE 2** Abstract 72
Aqueous chemistry of Tl chlorides from the Nh chemistry perspective.
Pavel Bartl
Department of Nuclear Chemistry, CTU in Prague–FNSPE Brehova 7, 115 19
Praha 1, Czech Republic

16:15 – 16:30 **TRANSACTINIDE 3** Abstract 73
Exploring the bottom of the periodic table: The chemistry of (super) heavy elements.
Patrick Steinegger
Paul Scherrer Institute, Laboratory of Radiochemistry, Nuclear Energy and Safety
Division, Switzerland

16:30 – 16:45 **TRANSACTINIDE 4** Abstract 74
Isothermal gas chromatography experiments under non-optimal conditions: the case of adsorption enthalpies of Tl and TlOH on fused silica.
Rugard Dressler
Paul-Scherrer-Institut, Villigen PSI, Switzerland

19:00 - 23:00 **NRC10 CONFERENCE DINNER**
GRANDE HOTEL
(SMART CASUAL DRESS)

SESSION 9: NUCLEAR FUEL CYCLE

Chair: Dr Carolyn Pearce, Pacific Northwest National Laboratory, USA

- | | | |
|--|--|-------------|
| 09:00 – 09:30 | Invited Plenary Lecture: | Abstract 75 |
|
Environmental Radiochemistry Research in the UK: Challenges and Research Impacts. | | |
| Professor Katherine Morris, The University of Manchester, UK | | |
|
 | | |
| 09:30 – 09:45 | NFC 1
Removal of radioactive silver and iodine by amino adsorbents synthesized via simultaneous gamma-ray induced radiation grafting.
Xiaohan Pan
School of Mechanical Engineering, Shanghai Jiao Tong University, China | Abstract 76 |
| 09:45 – 10:00 | NFC 2
Redox behaviour and distribution of nuclides in fluoride molten salt.
Qiang Dou
Shanghai Institute of Applied Physics, Chinese Academy of Sciences, China | Abstract 77 |
| 10:00 – 10:15 | NFC 3
Radiological characterisation of magnox fuel element debris (FED) at Oldbury and Sizewell A to facilitate low-level waste (LLW) disposal.
Joshua Weatherill
Nuclear Restoration Services Ltd, Hinton House, Birchwood Park Avenue, Risley, Warrington, Cheshire, UK | Abstract 78 |
| 10:15 – 10:30 | NFC 4
Progress towards the immobilization of the UK Plutonium inventory in Titanate ceramics.
Lewis Blackburn
Immobilisation Science Laboratory, Department of Materials Science and Engineering, University of Sheffield, UK | Abstract 79 |
| 10:30– 10:45 | NFC 5
Effect of gamma radiation on alternative polymers for use in the nuclear industry.
Alex Stone
National Nuclear Laboratory, Havelock Rd, Workington, UK | Abstract 80 |
| 10:45– 11:00 | NFC 6
Diffusive transport of radionuclides (Cl-36 and H-3) measured by LSC and AMS.
Sandra Baur
Paul Scherrer Institute, Department of Radiation Safety and Security, Radioanalytics Group, Villigen PSI, Switzerland | Abstract 81 |
| 11:00 – 11:30 | Tea and Coffee – CAMBRIDGE & DURHAM ROOMS | |

11:30 – 11:45	NFC 7 Underpinning confidence in irradiated graphite inventories in support of an integrated graphite management strategy. Alan Fisher Nuclear Restoration Services Ltd, Hinton House, Birchwood Park Avenue, Risley, Warrington, Cheshire, WA3 6GR, UK	Abstract 82
11:45 – 12:00	NFC 8 A microfluidic technique for studying dissolution mechanism of uranium from simulated nuclear fuel debris. Tongyu Xu Department of Chemical Science and Engineering, Tokyo Institute of Technology, Japan	Abstract 83
12:00 – 12:15	NFC 9 A more sustainable and cost-effective spent nuclear fuel reprocessing by hydrophobic eutectic solvents. Elena Macerata Department of Energy, Politecnico di Milano, Milano, Italy	Abstract 84
12:15 – 12:30	NFC 10 Developing surrogates to understand structure and reactivity of the UK's special nuclear material. Cooper R. T. Smylie Joseph Black Building, School of Chemistry, University of Glasgow, University Avenue, Glasgow, UK	Abstract 85
12:30 – 12:45	NFC 11 Studies on Aggregation and Dissolution of Cerium Oxide nanoparticles from nuclear fuel debris. Yiwei Zhang Department of Chemical Engineering, University College London, Torrington Place, London, UK	Abstract 86
12:45 – 13:00	NFC 12 Radionuclides' transport in cementitious materials. Juuso Sammaljarvi Department of Chemistry, University of Helsinki, Finland	Abstract 87
13:00 – 13:30	NRC10 - CONFERENCE CLOSING REMARKS: Professor Marko Štrok EuChemS – DNRC Chair Dr Louise Natarajan RSC – Radiochemistry Interest Group Chair	
13:30	CONFERENCE END	

NRC10 Neptunium Sponsors:



www.triskem-international.com



www.gov.uk/government/organisations/nuclear-waste-services

NRC10 Plutonium Sponsors



The University of Manchester
Dalton Nuclear Institute

www.dalton.manchester.ac.uk



www.siemens-healthineers.com/en-uk



www.nnl.co.uk



www.mirion.com



www.cyclife-edf.com



www.agilent.com



www.ureenco.com

NRC10 Uranium Sponsors



www.ortec.com/en-gb



www.southernscientific.co.uk



www.nnuf.ac.uk/exact



www.raddec.com



www.gel.com



www.scitech.com



www.ezag.com



www.lablogic.com



www.gau.org.uk



www.southampton.ac.uk



www.socotec.co.uk



www.hidex.com



www.npl.co.uk



www.irasactiveanalytics.co.uk



www.datech-scientific.co.uk