# NRC-8, EuCheMS International Conference on Nuclear and Radiochemistry

Sunday 16 September 2012 - Friday 21 September 2012

Como, Italy
Programme

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### **Sunday 16 September 2012**

Reception - (16:00-18:00)

Registration at registration desk of Grand Hotel di Como

time	[id] title	presenter
18:00	[0] LECTIO MAGISTRALIS - Chemistry in Italy during the late 18 <sup>th</sup> and 19 <sup>th</sup> Centuries	Prof. BELLOBONO, Ignazio Renato

Welcome party: Reception cocktail in the "Grand Hotel di Como" garden - (19:30-21:00)

### **Monday 17 September 2012**

#### **Opening Ceremony** - (08:00-09:30)

#### Opening Ceremony and Registration at registration desk of Grand Hotel di Como

time	[id] title	presenter
08:00	[263] A warm welcome from the Division of Nuclear and Radiochemistry (DNRC) of EuCheMS	Prof. GAEGGELER, Heinz (Paul Scherrer Institut, Switzerland)

#### **Coffee break** - (09:30-10:00)

# <u>Session 1 - Radiopharmaceutical Chemistry (radiodiagnostics, radiotherapy, theragnostics)</u> - (10:00-13:00)

- Conveners: Prof. Cutler, Cathy (University of Missouri, USA)

itle	
iut	presenter
	Prof. CHATAL, Jean-François (GIP ARRONAX, France)
Theragnostic Radiopharmaceuticals	Prof. SRIVASTAVA, Suresh (Brookhaven National Laboratory, USA)
ndamental role of Technetium and Rhenium Chemistry	Prof. ALBERTO, Roger (University of Zurich, Switzerland)
9	Prof. ROESCH, Frank (University of Mainz, Germany)
chemical aspects	Dr. CHINOL, Marco (European Institute of Oncology, Italy) Dr. PAPI, Stefano (European Institute of Oncology, Italy)
ones relationship in white adipose tissue	Dr. PAVELKA, Stanislav (Department of Radiometry, Institute of Physiology, v.v.i., Academy of Sciences of the Czech Republic, Prague; and Institute of Biochemistry, Masaryk University, Brno, Czech Republic)
ng and an alternative to the existing 44Ti/44Sc ?	Dr. HUCLIER-MARKAI, Sandrine (Laboratoire Subatech, UMR 6457, Ecole des Mines de Nantes /CNRS/IN2P3 / Université de Nantes, 4 Rue A. Kastler, BP 20722, F-44307 Nantes Cedex 3, France.)
ach to peptide receptor radionuclide therapy	Mr. KRAJEWSKI, Seweryn (Institute of Nuclear Chemistry and Technology, Dorodna Street 16, 01312 Warsaw, Poland)
ternal radiotherapy	Ms. LESZCZUK, Edyta (Institute of Nuclear Chemistry and Technology, Poland)
(Control of the control of the contr	OPENING LECTURE - Future prospects in diagnostic and therapeutic nuclear ine INVITED LECTURE - A Bridge not too Far: Personalized Medicine with the Theragnostic Radiopharmaceuticals INVITED LECTURE - On the road from Radiopharmacy to Molecular Imaging: indamental role of Technetium and Rhenium Chemistry INVITED LECTURE - A renaissance of radionuclide generators for versatile ation INVITED LECTURE - <sup>90</sup> Y and <sup>177</sup> Lu labelled peptides for PRRT: nuclear and hemical aspects INVITED LECTURE - <sup>90</sup> Y and international spects for PRRT: nuclear and spects INVITED LECTURE - A renaissance of radionuclide spectations for PRRT: nuclear and international spects INVITED LECTURE - A renaissance of radionuclide spectation spectation international spectation internation international spectation in display

#### **Lunch** - (13:00-14:00)

# Session 2 (cn't of Session 1) - Radiopharmaceutical Chemistry (radiodiagnostics, radiotherapy, theragnostics) - (14:00-17:00)

- Conveners: Prof. Chatal, Jean-Francois (GIP ARRONAX, France); Dr. Chinol, Marco (European Institute of Oncology, Italy)

time	[id] title	presenter
14:00	[255] OPENING LECTURE - Organic PET-Radiopharmaceuticals – Aspects of Previous and Current Labelling Techniques	Prof. STEINBACH, Jörg (Helmholtz-Zentrum Dresden-Rossendorf, Germany)
14:20	[89] INVITED LECTURE - Novel <sup>18</sup> F-Radiochemistry	Dr. ERMERT, Johannes (Forschungszentrum Juelich GmbH, Institut fuer Neurowissenschaften und Medizin, INM-5: Nuklearchemie, Germany)
14:40	[163] INVITED LECTURE - Labeling of radiopharmaceuticals with Iodine-124 and their clinical applications	Dr. PILLARSETTY, Naga Vara Kishore (Memorial Sloan-Kettering Cancer Center, USA)
15:00	[22] INVITED LECTURE - Recoil and conversion electron implications to be taken into account in the design of therapeutic radiopharmaceuticals utilising in vivo generators	Prof. ZEEVAART, Jan Rijn (Necsa, South Africa)
15:20	[239] INVITED LECTURE - Radiochemistry of Astatine-211: Application to Alpha Particle Targeted Radiotherapeutics	Prof. ZALUTSKY, Michael (Duke University, USA)
15:40	[46] ORAL PRESENTATION - Polymersomes as nano-carriers for alpha radionuclide therapy	Dr. DENKOVA, Antonia (TU Delft, Netherlands)
15:55	[192] ORAL PRESENTATION - Production of Four Terbium Radioisotopes for Radiopharmaceutical Applications	Mr. DORRER, Holger (Paul Scherrer Institut, Villigen-PSI, Switzerland & University of Bern, Berne, Switzerland)
16:10	[160] ORAL PRESENTATION - Decay data measurements on <sup>213</sup> Bi using recoil atoms	Dr. POMMÉ, Stefaan (EC-JRC-IRMM, Belgium)
16:25	[149] ORAL PRESENTATION - Bioconjugated nanozeolites labeled with <sup>223,224,225</sup> Ra	Prof. BILEWICZ, Aleksander (Institute of Nuclear Chemistry and Technology, Poland)
16:40	[179] ORAL PRESENTATION - Development of <sup>44</sup> Sc production for radiopharmaceutical applications	Mrs. BUNKA, Maruta (Laboratory of Radiochemistry and Environmental Chemistry, Villigen PSI, Switzerland)

#### **Coffee breack** - (17:00-17:30)

# <u>Poster Session: 1, Session dedicated to the 80th Birthday of Prof. (em) Ignazio Renato Bellobono</u> - (17:30-19:00)

[id] title	presenter	board
[138] Electrosynthesis of electrophilic n.c.a. 18F-fluorinating reagents	Mr. DRERUP, Christian	
[140] Gallium-68 complexes of NOTA-bis(phosphonates) conjugates as radiotracers for bone imaging with PET	Mr. HOLUB, Jan	

[217] Radiosynthesis of 18F-Labeled Diclofenac Hydroxy-Derivative as potential micro-PET imaging tracer	LIN, Manjing
[97] Quantification of iodothyronine deiodinases activities, induced in cultured astrocytes by purinergic agonists, with the use of radiometric enzyme assays	Dr. PAVELKA, Stanislav
[130] On the way to the synthesis of the first transactinide carbonyl complex	Dr. EVEN, Julia
[126] Liquid-phase Studies of Seaborgium using the Automated Liquid-liquid Extraction system SISAK	Dr. OMTVEDT, Jon Petter
[24] Gas-phase chemistry of carbonyl complexes formed in hot-atom reactions with short-lived isotopes of a Cf-252 fission source	WANG, Yang Prof. QIN, Zhi
[36] Characterization of At- and AtO+ species in simple media by high performance ion exchange chromatography coupled to gamma detector. Application to astatine speciation in human serum.	Dr. SABATIÉ-GOGOVA, Andrea
[86] Redox studies of the heaviest elements using an electrolytic column apparatus	Dr. TOYOSHIMA, Atsushi
[74] On the fast release of tracer elements from metallic hosts – a step towards vacuum chromatography	Dr. EICHLER, Robert
[197] Automated rapid $\alpha$ /SF detection system for studying aqueous chemistry of superheavy elements at RIKEN	Dr. HABA, Hiromitsu
[164] Extraction of Zr and Hf using TBP and TIOA for the chemistry of element 104 Rf	Dr. KASAMATSU, Yoshitaka
[202] Development of a liquid scintillation detection system for aqueous chemistry of seaborgium	Mrs. KOMORI, Yukiko
[158] Diamond Detectors in Transactinide Chemistry	Mr. STEINEGGER, Patrick
[200] Extraction behavior of Mo(VI), Mo(V), W(VI), and W(V) from HCl solutions by Aliquat 336	Mr. YOKOKITA, Takuya
[61] Study on Quadrivalent Chemical Species of Rutherfordium in Aqueous Solution by Means of TTA resin	Dr. YOKOYAMA, Akihiko
[211] Characteristics of Uranium species when U(III) in a LiCl-KCl molten salt was leached out with water and ionic liquid	Dr. IM, Hee-Jung
[55] Selective ion exchangers for Fukushima waste effluent purification	Prof. LEHTO, Jukka
[21] Experimental Investigation on Cryogenic Adsorption of Low-concentration Hydrogen from Helium by MS5A	Ms. QIAN, xiaojing
[139] The Effect of Cellulose Degradation Products on the Migration of 90Sr in Cementitious Backfill using Radial Diffusion.	Mr. HINCHLIFF, John
[110] Recoil-radiolabelling of nanoparticles with 7Be generated by 7Li(p,n)7Be reaction in mixed powder targets.	Dr. KOZEMPEL, Jan
[53] Study of the Production of Mo and Tc Medical Radioisotopes Via Proton Induced Nuclear Reaction on natMo.	Dr. ALHARBI, Abeer
[162] Synthesis and Characterization of Radiolabelled Silver Nanoparticles	Dr. ICHEDEF, Cigdem
[1] Nuclear and radioanalytical techniques in nanotoxicology research: studies on the Rabbit Reproductive System	Prof. GROPPI, Flavia
[204] Synthesis of new 18F-labelled Porphyrins and their potential aplication for in vivo Molecular Imaging with PET	Ms. SIMÕES, Ana
[155] New analytical method for actinide (Pu, Am, U, Th, Np) separation based on diglycolamide resin (DGA)	Ms. GROSKA, Judit

187] Neptunium Redox Chemistry in Irradiated HNO3 Solutions	Dr. PAULENOVA, Alena
[125] Determination of Boron distribution in Co-Re alloys	Dr. SZENTMIKLÓSI, László
[101] Characterization of silicon for photovoltaic applications with INAA and PGAA	Dr. WIEHL, Norbert
[223] INAA for discriminationg geographic origin of Brazilian rice	Dr. ELIAS, Camila Prof. DE NADAI FERNANDES, Elisabete
[104] Radiochemical separation of uranium and protactinium from neutron irradiated thorium.	Dr. CHAJDUK, Ewelina
[105] Radiochemical separation of arsenic from selenium and its potential usage in generator isotope production.	Dr. CHAJDUK, Ewelina
[184] Mineral Nutrients in Brazilian Commercial Dog Foods	Ms. ELIAS, Camila
[214] A new PTS for short-time neutron activation analysis	Prof. ISMAIL, Saleh
[159] Natural radionuclides levels in spices and medicinal plants by gamma spectrometry	Dr. JAHOUACH-RABAI, Wafa
[132] Detection of irradiated foods using TL, ESR and GC/MS	Mrs. KANG, Yoonjung
[189] The air-water partitioning of radon in groundwater contaminated by BTEX	Dr. LEE, Kil Yong
[157] Geochemically anomalous phonolites from Lusatian Mountains, Czech Republic: Possible source materials and processes of their origin	Dr. MIZERA, Jiří
[131] Determination of Mineral Contents in Korean Domestic Unpolished Rice and Bean Samples by Neutron Activation Analysis	Mr. MOON, JongHwa
[166] Non-destructive and quantitative multi-elemental analysis by muonic X-ray spectroscopy for archeological bronze samples	Dr. NINOMIYA, Kazuhiko
[98] Radiometric quantification of type 1 iodothyronine 5'-deiodinase activity in human white adipose tissue	Dr. PAVELKA, Stanislav
[99] Development of diet-induced obesity in the rat, followed by radioanalytical methods	Dr. PAVELKA, Stanislav
[186] Mineral Elements Determination in Medicinal Plants	SILVA, Paulo
[183] Validation of the method for Ni determination in NPP evaporator concentrates	Dr. SULAKOVA, Jana
[168] A preliminary study of prompt gamma-ray activation analysis using pulsed neutron at J-PARC / ANNRI	Dr. TOH, Yosuke
[51] Biodistribution of Gadolinium-Based Contrast Agent, and Concentration of Trace Elements in Normal and Nephrectomized Mice	Mr. WASHIYAMA, Kohshin
[195] Application of medium-energy proton beam from AIC-144 cyclotron in biological and environmental studies	Ms. WÓJCIK, Anna
[43] Sequential separation of ultra-trace U, Th, Pb, and lanthanides with a single anion-exchange column	Dr. MIYAMOTO, Yutaka
[172] Experimental Performance Evaluation of a Compton Suppression System for Neutron Activation Analysis by Using a Gamma-ray Source and Standard Reference Materials	Mr. MOON, JongHwa
[123] NukWik – A Tool for Collaboration and Sharing Teaching Material in	Mr. NORÉN, Henrik

[48] Fluorescent Imaging of the Radiation Dose Surrounding an Iridium-192 Seed Used in Brachytherapy	Dr. DENKOVA, Antonia
[193] 66Ga-labeling of DOTA-conjugated cyclic RGDfK dimer for $\alpha\nu\beta3$ integrin overexpression tumors	AVILA-RODRIGUEZ, Miguel
[257] NORMA: A new PGAI-NT setup at the Budapest Research Reactor	Dr. SZENTMIKLÓSI, László
[258] SYNTHESIS AND X-RAY STUDY OF RADIUM METAPLUMBATE	BUTKALYUK, Irina
[261] The influence of iron on the efficiency of the 68Ga labeling of DOTATOC and simple colorimetric determination of iron	Dr. MUELLER, Dirk
[262] Separation of actinium-225 for nuclear medicine purposes from thorium targets irradiated by high energy protons	ALIEV, Ramiz
[59] Fast beta-alpha-pile-up suppression electronics for super heavy element identification	Dr. DRESSLER, Rugard
[143] Advanced Fuels for Generation IV reactors: Reprocessing and Dissolution – ASGARD	Dr. RETEGAN, Teodora
[268] Problems of determination of Tc-99 in soil and sediments	Mr. KLESZCZ, Krzysztof Prof. MIETELSKI, Jerzy

### **Tuesday 18 September 2012**

#### Session 3 - Chemistry of radioelements and Super Heavy Elements research - (08:00-11:30)

- Conveners: Prof. Gaeggeler, Heinz (PSI, Switzerland); Dr. Schaedel, Matthias (Japan Atomic Energy Agency, GSI, Germany)

time	[id] title	presenter
08:00	[178] OPENING LECTURE - Recent Advances in Superheavy Element Research	Prof. TÜRLER, Andreas (Laboratory of Radiochemistry and Environmental Chemistry, Paul Scherrer Institute & Bern University, Switzerland)
08:30	[241] INVITED LECTURE - Spectroscopic methods for the heaviest nuclei	Prof. HERZBERG, Rolf-Dietmar (University of Liverpool, UK)
09:00	[63] INVITED LECTURE - The unique chemical and physical properties of the heaviest elements in the Periodic Table	Prof. KRATZ, Jens Volker (Universität Mainz, Germany)
09:30	[169] INVITED LECTURE - Vacuum thermochromatography - prospective method for heaviest element studies	Prof. ZVARA, Ivo (JINR Dubna, Russia)
09:50	[111] INVITED LECTURE - Aqueous-phase chemistry of the heaviest elements	Dr. NAGAME, Yuichiro (Japan Atomic Energy Agency, Japan)
10:10	[76] ORAL PRESENTATION - The observation of a volatile compound formation with Po and Bi during experiments with superheavy elements	Dr. EICHLER, Robert (Paul Scherrer Institute,Switzerland)
10:25	[146] ORAL PRESENTATION - New experiments to study properties of $^{268}$ Db produced in the $^{48}$ Ca + $^{243}$ Am reaction	Dr. AKSENOV, Nikolay (Flerov Laboratory of Nuclear Reactions, Joint Institute for Nuclear Research, Russia)
10:40	[71] ORAL PRESENTATION - Superheavy element 114 is a volatile metal	Prof. DÜLLMANN, Christoph (University of Mainz + GSI Darmstadt + Helmholtz Institute Mainz, Germany)
10:55	[35] ORAL PRESENTATION - Exploration of the metallic character of astatine	MONTAVON, Gilles (Subatech, France)
11:10	[207] ORAL PRESENTATION - RIKEN GARIS as a promising interface for superheavy element chemistry —Production of 261Rf, 262Db, and 265Sg for chemical studies using the GARIS gas-jet system—	Dr. HABA, Hiromitsu (RIKEN, Japan)

#### Coffee break - (11:30-11:50)

# <u>Session 4 - Reaction mechanisms and nuclear recoils, nuclear base spectroscopies, radiation geochronology, isotope effects - (11:50-13:30)</u>

- Conveners: Dr. Schumann, Dorothea (PSI, Switzerland); Prof. Revay, Zsolt (Technical University Munich, Geramany)

time	[id] title	presenter
11:50	[196] OPENING LECTURE - Iron speciation in aqueous systems: the power of Mössbauer spectroscopy applied in frozen solutions	Prof. HOMONNAY, Zoltan (Eotvos Lorand University, Hungary)
12:10	[253] INVITED LECTURE - Half lives of nuclides for geological use: 2012 evaluations for $^{87}{\rm Rb,}~^{235}{\rm U}$ and $^{234}{\rm U}$	Prof. VILLA, Igor M (Universität Bern, Switzerland; Università Milano Bicocca, Italy)

12:30	[222] INVITED LECTURE - Rapid Radiochemical Analysis of Radionuclides Difficult to Measure in Environmental and Waste Samples	Dr. HOU, Xiaolin (Center for Nuclear Technologies, Technical University of Denmark, Denmark)
12:50	[72] INVITED LECTURE - TRIGA-SPEC: an apparatus for high-precision mass spectrometry and laser spectroscopy on short-lived neutron-rich radionuclides produced at the research reactor TRIGA Mainz	Mr. SMORRA, Christian (Max-Planck-Institut für Kernphysik Heidelberg, Ruprecht Karls-Universität Heidelberg, Johannes Gutenberg-Universität Mainz, Germany)
13:10	[201] ORAL PRESENTATION - Local Fields at Nonmagnetic Probe Sites in a Perovskite La0.7Ca0.3MnO3	Dr. SATO, Wataru (Institute of Science and Engineering, Kanazawa University, Japan)

#### **Lunch** - (13:30-14:30)

# <u>Session 5 - Nuclear fuel cycles, Research Reactors and present NPP (including Gen IV and Th reactors)</u> - (14:30-16:30)

- Conveners: Prof. Geckeis, Horst (Karlsruhe Institute of Technology, Germany); Dr. Saracco, Paolo Giovanni (INFN Genova, Italy)

time	[id] title	presenter
14:55	[235] INVITED LECTURE - Update of GEN-IV reactors and lead cooled reactors	CINOTTI, Luciano (M.E.Rivus s.r.l, Italy)
15:30	nuclear fuel reprocessing in China	Dr. SHI, Wei-Qun (Institute of High Energy Physics,Chinese Academy of Sciences, China)
15:50	[259] INVITED LECTURE - Nuclear Fuel Cycle: Processes, critical aspects and perspectives	Dr. TROIANI, Francesco (ENEA/NUCLECO SpA) Dr. GRASSO, Giacomo (ENEA)
16:10	[252] INVITED LECTURE - Solution reactors for production of Mo-99 and Sr-89 (via Kr-89)	Dr. PAVSHUK, Vladimir A. (Russian Research Center "Kurchatov Institute", Russia)

#### **Coffee break** - (16:30-16:50)

# <u>Session 6 (cn't of Session 5) - Nuclear fuel cycles, Research Reactors and present NPP (including Gen IV and Th reactors) - (16:50-19:30)</u>

- Conveners: Prof. Pagani, Carlo (University of Milano and INFN, Italy); Prof. Aggarwal, Suresh Kumar (Bhabha Atomic Research Centre, India)

time	[id] title	presenter
16:50	[231] INVITED LECTURE - Conceptual design of a low power ADS with a 70 MeV proton beam for reasearch and training	Dr. SARACCO, Paolo Giovanni (Istituto Nazionale di Fisica Nucleare, Sez. Genova, Italy)
17:10	[236] INVITED LECTURE - High power superconducting proton accelerators for ADS and Gen-IV	Prof. PAGANI, Carlo (University of Milano and INFN LASA, Italy)
17:30	[134] INVITED LECTURE - Transmutation of minor actinides in the molten salt reactor recently studied in Russia	Prof. PONOMAREV, Leonid (NRC "Kurchatov Institute", Russia)
17:50	[145] INVITED LECTURE - The very powerful UCN source at the reactor TRIGA Mainz - Application for precise measurements of the neutron half-life	Dr. SOBOLEV, Yury (Johannes-Gutenberg Universität Mainz, Institut für Kernchemie, Germany)

18:10	[151] ORAL PRESENTATION - Adsorption of selected fission products on various forms of ${\rm TiO}_2$ nanoparticles.	Ms. FILIPOWICZ, Barbara (Institute of Nuclear Chemistry and Technology, Dorodna 16, 03-195 Warsaw, Poland)
18:25	[40] ORAL PRESENTATION - Development of Decontamination Method Using Ionic Liquid as a Medium for Treating Waste Contaminated with Uranium	Mr. OHASHI, Yusuke (Ningyo-toge Environmental Engineering Center, Japan Atomic Energy Agency, Japan)
18:40	[137] ORAL PRESENTATION - Selectivity of bis-triazinyl bipyridine ligands for americium(III) in Am/Eu separation by solvent extraction. Quantum mechanical study	Prof. NARBUTT, Jerzy (Institute of Nuclear Chemistry and Technology, Warsaw, Poland)
18:55	[210] ORAL PRESENTATION - Decomposition of boric acid solutions and evolution of gases under mixed thermal and fast neutrons and gamma radiation	Dr. IM, Hee-Jung (Nuclear Chemistry Research Division, Korea Atomic Energy Research Institute, Korea)

### Wednesday 19 September 2012

#### Session 7 - Nuclear Chemistry, Radionuclide Production, High-Power Targetry - (08:00-10:45)

- Conveners: Prof. Zhuikov, Boris (Institute for Nuclear Research of Russian Academy of Sciences, Russia); Prof. Bonardi, Mauro L. (UNIMI and INFN - Milano, Italy)

time	[id] title	presenter
08:00	[120] OPENING LECTURE - Recent advances in nuclear data research for medical radionuclide production	Prof. QAIM, Syed M. (Forschungszentrum Jülich, Germany)
08:30	[127] INVITED LECTURE - <sup>68</sup> Ge- <sup>68</sup> Ga production revisited: new excitation functions, target preparation and separation chemistry	Prof. HERMANNE, Alex (Cyclotron lab, Vrije Universiteit Brussel, Belgium)
08:50	[243] INVITED LECTURE - Radionuclide production studies by heavy ion beams	Prof. LAHIRI, Susanta (Saha Institute of Nuclear Physics, India)
09:10	[256] Overview of PET radionuclide production methods.	Prof. CLARK, John C (University of Edinburgh, UK)
09:30	[254] INVITED LECTURE - Radionuclides and radiopharmaceuticals at POLATOM	Dr. MIKOLAJCZAK, Renata (NCBJ Radioisotope Centre POLATOM, Poland)
09:50	[240] INVITED LECTURE - Reactor production of radionuclides for molecular imaging and targeted radiotherapy	Dr. CUTLER, Cathy (University of Missouri, USA)
10:10	[260] INVITED LECTURE - Review of Mo-99 and other reactor radionuclide production in RIAR in terms of world demands	Dr. KUZNETSOV, Rostislav (Research Institute of Atomic Reactors, Russia)
10:30	[41] ORAL PRESENTATION - A new route for polonium-210 production from a bismuth-209 target	Mr. YOUNES, Ali (SUBATECH laboratory (UMR 6457), Nantes 44307, France)

#### Coffee break - (10:45-11:00)

#### Session 8 - Nuclear Chemistry, Radionuclide Production, High-Power Targetry - (11:00-13:30)

- Conveners: Prof. Srivastava, Suresh (Brookhaven National Laboratory, USA); Dr. Mikolajczak, Renata (Polatom, Poland)

time	[id] title	presenter
11:00	[245] OPENING LECTURE - The Road to Cyclotron Produced Tc-99m	Prof. MCQUARRIE, Steve (University of Alberta, Canada)
11:20	[32] INVITED LECTURE - Cyclotron production of radionuclides with medium-energy proton beams and high-power targetry	Dr. STEYN, G. (iThemba LABS, South Africa)
11:40	[29] INVITED LECTURE - Radionuclide Production at Accelerator with High Power Targets	Dr. ZHUIKOV, Boris (Institute for Nuclear Research of Russian Academy of Sciences, Russia)
12:00	[242] INVITED LECTURE - Recent advances in large scale isotope production at LANL	Dr. NORTIER, Francois (Los Alamos National Laboratory, USA)
12:20	[237] INVITED LECTURE - ARRONAX: on the way to the production of radio-isotopes with high-power targets	Dr. HADDAD, Ferid (Subatech / ARRONAX, France)
12:40	[238] INVITED LECTURE - Use of radioactive targets for production of therapy radionuclides at the Brookhaven Linac Isotope Producer	Dr. MAUSNER, Leonard (Brookhaven National Laboratory, USA)

13:00	[124] ORAL PRESENTATION - Thermochromatography study of volatile Tellurium species in various gas atmospheres.	Dr. MAUGERI, Emilio Andrea (PSI, Switzerland)
13:15	[107] ORAL PRESENTATION - Complexation of Cm(III) with 2,6-bis(5-(2,2-dimethylpropyl)-1H-pyrazol-3-yl)pyridine (C5-BPP) studied by time-resolved laser fluorescence spectroscopy	BREMER, Antje (Institute for Nuclear Waste Disposal - Karlsruhe Institute of Technology, Geramany)

#### **Lunch** - (13:30-14:30)

#### Celebration of 50th Birthday of Radiochimica Acta - (14:30-14:50)

- Conveners: Prof. Qaim, Syed M. (Forschungszentrum Jülich); Prof. Kratz, Jens Volker (University of Mainz); Sperlich, Angelika (Oldenbourg Verlag)

#### Session 9 - Applications of radiotracers and nanoparticles - (14:50-17:40)

- Conveners: Prof. Chatt, Amares (Dalhousie University, Canada); Prof. Hou, Xiaolin (Technical University of Denmark, Denmark)

time	[id] title	presenter
14:50	[78] OPENING LECTURE - Nuclear and radioanalytical techniques in nanotoxicology research	Dr. SABBIONI, Enrico (European Center for the Sustainable Impact of Nanotechnology-ECSIN, Veneto Nanotech ScpA, Italy)
15:10	[227] INVITED LECTURE - Radiochemical neutron activation analysis: the continuous need of this analysis mode	Prof. KUCERA, Jan (Nuclear Physics Institute, AS CR, CZ-25068 Husinec-Rez 130, Czech Republic)
15:30	[82] INVITED LECTURE - Nuclear analytical methods in prostate cancer diagnostics	Dr. ZAICHICK, Vladimir (Medical Radiological Research Center, Russia)
15:50	[246] INVITED LECTURE - The use of nuclear analytical techniques in the identification and investigation of metal- and metalloid-containing proteins	Prof. BEHNE, Dietrich (Helmholtz Centre Berlin, Germany)
16:10	[56] INVITED LECTURE - Exploitation of accelerator waste for the production of exotic radionuclides	Dr. SCHUMANN, Dorothea (Paul Scherrer Institute, Switzerland)
16:30	[185] INVITED LECTURE - Novel mesoporous materials for actinide and lanthanide separation	Prof. NITSCHE, Heino (University of California, Berkeley, Department of Chemistry, USA)
16:50	[150] ORAL PRESENTATION - Radiolabelling of engineered nanoparticles – different strategies for Ag <sup>0</sup> -NP, TiO <sub>2</sub> -NP and MWCNT	Dr. FRANKE, Karsten (HZDR, Germany)
17:05	[52] ORAL PRESENTATION - Synthesis of Silica-coated Bimetallic Nanoparticles as Radiotracers	Dr. JUNG, Sung-Hee (Korea Atomic Energy Research Institute, Korea)
17:20	[42] ORAL PRESENTATION - Nanomedicine Approaches of Radioactive Gold Nanoparticles In Cancer Therapy	Prof. KATTI, Kattesh (University of Missouri, USA)

#### Coffee break - Offered by Oldenburg-Verlag - (17:40-18:00)

# <u>Poster Session: 2, Session dedicated to Prof. Attila Vertes (deceased on 31 December 2011)</u> - (18:00-19:50)

[id] title presenter board

[69] The LARAMED project at INFN Legnaro National labs	Dr. ESPOSITO, Juan
[118] Validation of neutron induced data up to 18 MeV for production of the therapeutic radionuclide 67Cu	Dr. HUSSAIN, Mazhar
[67] Radiochemical separation of no-carrier-added 97Ru and 95Tc produced by 12C-induced reaction on natural yttrium target	Prof. LAHIRI, Susanta
[91] A novel path in partitioning: Water-soluble BTP ligands for the innovative SANEX process	Prof. PANAK, Petra
[94] Pd-based intermetallic targets for high intensity irradiations	Mr. USOLTSEV, Ilya
[79] Development of actinide liquid scintillating target	Dr. AUPIAIS, Jean
[70] Preparation of TBq Activity 7Be from SINQ Cooling Water	Mrs. STOWASSER, Tanja
[147] Development of production possibilities of n.c.a radiomanganese in a non aggressive and toxic medium	Dr. BUCHHOLZ, Martin
[85] Separation of carrier free 177Lu from 177Lu /Yb mixture by electro-amalgamation of ytterbium	Dr. CIESZYKOWSKA, Izabela
[93] Preparation of 57Co sources for Mössbauer Spectroscopy	Dr. ŻÓŁTOWSKA, Małgorzata
[64] Accelerator-based Alternative Tc-99m production: EMPIRE 3.1 theoretical simulations of cross sections for Mo(p,X) reactions and comparison with literature experimental data	Dr. ESPOSITO, Juan
[133] Cyclotron produced $^{45}\mathrm{Ti}$ – production, purification and yields	Dr. FRANKE, Karsten
[249] Separation of no-carrier-added 109Cd from natural silver target using RTIL 1-butyl-3-methylimidazolium hexafluorophosphate	Prof. LAHIRI, Susanta
[81] Application of a mixed bed column for the removal of iodine from radioactive process effluents	Dr. HAPPEL, Steffen
[39] 64Cu and 67Cu Production and Purification Research at the Radiation Science and Engineering Center at the Pennsylvania State University	Prof. UNLU, Kenan
[156] Measurements of $\gamma$ - and $\beta$ +-intensities of Ti-45	Mr. KUHN, Sebastian
[100] Production and purification of 56Co at the Leipzig cyclotron	Dr. MANSEL, Alexander Dr. FRANKE, Karsten
[181] Separation of radioiodine by dry distillation process from irradiated elemental Te target	Dr. MISIAK, Ryszard Mr. BARTYZEL, Mirosław Mr. WĄS, Bogdan
[148] An Automated Production of 64Cu on 18/9 MeV cyclotron	Prof. RAJEC, Pavol
[208] Radiochemical and cross section studies for the production of the therapeutic radionuclide $^{\rm 193m}{\rm Pt}$	Dr. SCHOLTEN, Bernhard
[119] Nuclear spallation reactions in chromium, yttrium and terbium with 386 MeV neutrons	Dr. SEKIMOTO, Shun
[199] Nuclear and radiochemical study of production and utilization of radioactive astatine isotopes in the 7Li+natPb reaction	Dr. NISHINAKA, Ichiro
[142] Polonium Evaporation Studies from Liquid Lead-based Alloys	Mr. RIZZI, Matthias
[220] Elemental analysis of rivers, marshes and ground water in Thi Qar region, Iraq	Dr. ALRAKABI, Muhanad
[221] Investigation of uranium contamination in ground water of southwest Punjab using EDXRF technique	Dr. ALRAKABI, Muhanad

[50] Sorption of Cadmium, Nickel, Caesium and Strontium to a Laterite Soil: Application of Linear Additive Model and Surface Complexation Modelling	Mr. ANJOLAIYA, Olanrewaju
[106] Interaction of Cm(III) with human serum transferrin studied by Time-Resolved Laser Fluorescence Spectroscopy (TRLFS)	BAUER, Nicole
[62] Application of Non-linear Heterogeneity-based Isotherm Models for Charactering Sorption of Cs and Se on Mudrocks	Dr. CHUAN-PIN, Lee
[87] Experiments to demonstrate chemical containment: Solubility under the cementitious conditions of a repository in the UK	Dr. FELIPE-SOTELO, Monica
[109] Attachment of APTES ((3-aminopropyl)triethoxysilane) to silica for sorption and selective removal of radionickel from solution	Mr. HOLT, James
[230] Chemical Decontamination, at Field, after 137Cs Accident at Goiania, Brazil	Prof. MEDEIROS, Joao Alfredo
[225] Assessment of present and future radioactive contamination at global scale	Dr. NAVARRETE, Manuel
[116] Trivalent Actinide/Lanthanide Sorption under Saline Conditions	Dr. RABUNG, Thomas
[77] Structural studies of actinide-peptide complexes	Dr. SAFI, Samir
[174] Iodine - 129 in water samples from Germany	Ms. SCHWINGER, Mareike
[102] Archaeometry with INAA at the Research Reactor TRIGA Mainz	Mr. STIEGHORST, Christian
[49] Characterisation of Radioactive Scales (NORM) Produced by the Onshore Oil and Gas Industry in the UK	Mr. AFOLABI, Oluwasola
[129] Structural Transformations in Metallic Iron under the Action of External Irradiation	Prof. ALEKSEEV, Igor
[114] THEREDA – a Thermodynamic Reference Database project	Dr. ALTMAIER, Marcus
[103] Characterization of the Natural Organic Matter (NOM) by ultrafiltration and fluorescence in a groundwater plume contaminated with 60Co and 137Cs	Dr. CARON, François
[190] Iodine-129 and iodine-127 in aerosols from Northern Germany	Dr. DARAOUI, Abdelouahed Ms. SCHWINGER, Mareike Dr. RIEBE, Beate
[28] A Solid-State NMR Study of the Complexation of 109Cd with Isosaccharinic Acid	Dr. EVANS, Nick
[88] Generation of inorganic colloids in the chemical disturbed zone in the proximity of a cementitious repository	Dr. FELIPE-SOTELO, Monica
[219] Uranium in ground water samples from Anthemountas Basin, Northern Greece	Prof. IOANNIDOU, Alexandra
[226] Time lag between the tropopause height and <sup>7</sup> Be activity concentrations on surface air	Prof. IOANNIDOU, Alexandra
[209] Airborne radionuclides measured in Wako, Japan, after the Fukushima Dai-ichi nuclear power plant accident in 2011	Mr. KANAYA, Jumpei
[26] Coprecipitation of Radionuclide Microquantities on Chitosans of Different Molecular Masses in Solutions	Prof. KULYUKHIN, Sergey
[213] Environmental impact due to the operation of a tin and lead industry inferred by lichens	Dr. LEONARDO, Lucio
[176] Spectroscopic Studies of Complexation Behaviour of Uranium(VI) by Schiff Bases	Ms. LINDNER, Katja
[205] Preparation of spiked grass for use as environmental radioactivity calibration standard	Dr. LOURENÇO, Valerie

[215] Gamma external radiation dose for Mexican population	Dr. NAVARRETE, Manuel
[144] EC Interlaboratory Comparison on Radionuclides in Dried Bilberries	Dr. MEREŠOVÁ, Jana
[167] Anomalous uranium enrichment in coals from Odeř, Sokolov Basin, Czech Republic	Dr. MIZERA, Jiří
[68] Study of Uranium Behavior in Lignite Sediments from Ruprechtov Natural Analogue Site	Mr. PIDCHENKO, Ivan Dr. SUKSI, Juhani
[112] Selective liquid-liquid extraction of Sr-85 with modified calixarenes	Ms. POETSCH, Maria Dr. MANSEL, Alexander
[115] CROCK: Crystalline Rock Retention Processes A 7th Framework Programme Collaborative Project (2011-2013)	Dr. RABUNG, Thomas
[182] Iodine-129 and iodine-127 in soils from Germany	Dr. RIEBE, Beate
[212] Sorption of niobium on Olkiluoto soil samples	SÖDERLUND, Mervi
[180] TiO2 based absorber for uranium separation and 236U measurement with AMS	Dr. NEMEC, Mojmir
[84] Fractionation of U, Th, Ra and Pb from boreal forest soils by sequential extractions	Ms. VIRTANEN, Sinikka
[117] Redox behavior of the Tc(VII)/Tc(IV) couple in dilute to concentrated NaCl and MgCl2 solutions	Mrs. YALCINTAS, Ezgi
[83] Pu-240/Pu-239 atom ratios in the northern North Pacific and equatorial Pacific water columns	Prof. YAMADA, Masatoshi
[224] Improvement of Detection Limits for Gamma-Ray Emitting Naturally Occurring Radionuclides in Drinking Water and Biological Materials by Instrumental Analysis using Compton Suppression Spectrometry	Prof. CHATT, Amares
[191] Atmospheric activity concentration of radiocesium at Mikamine, Sendai and radioactivity distribution on the collection filters used in the measurement.	Dr. KIKUNAGA, Hidetoshi
[198] Radioactivity measurement for air-dust and soil collected in eastern Japan area after the nuclear accident at the Fukushima Daiichi Nuclear Power Station	Mr. ZHANG, Zijian
[27] The Thermal Decomposition of CH3131I in a Gas Phase	Prof. KULYKHIN, Sergey
[66] Retardation behavior of Sr and Cs in Crushed and Intact Rocks Two potential LLW repository Taiwan host rocks	Prof. WU, Ming-Chee
[194] Selected Elements content in Paraguayan Wheat	Prof. FACETTI - MASULLI, J F
[121] Research Alliance for Validation of PGAA Actinide Nuclear Data	Mr. GENREITH, Christoph

### **Thursday 20 September 2012**

#### Session 10 - Radioanalytical Chemistry and Nuclear Analytical Techniques - (08:00-11:30)

- Conveners: Prof. Homonnay, Zoltan (Eotvos Lorand University, Hungary); Prof. Kucera, Jan (Nuclear Physics Institute ASCR, Czech Republic)

time	[id] title	presenter
08:00	[128] OPENING LECTURE - Prompt Gamma Activation Analysis using High-Flux Cold Neutron Beam	Dr. REVAY, Zsolt (Technische Universität München, Germany)
08:20	[228] INVITED LECTURE - Neutron activation analysis: a consolidated analytical tool in the sugarcane agroindustry	Prof. DE NADAI FERNANDES, Elisabete (Nuclear Energy Center for Agriculture, University of Sao Paulo, Brasil)
08:40	[58] INVITED LECTURE - Neutron Activation Analysis and Reference Materials – Development and Perfection	Dr. ZEISLER, Rolf (NIST, USA)
09:00	[153] INVITED LECTURE - Error, Uncertainty, and Metrology in Nuclear Analytical Methods	Dr. LINDSTROM, Richard (National Institute of Standards and Technology, USA)
09:20	[218] INVITED LECTURE - Studies of Trace Element Species in Macromolecules and Protein Nanoclusters by Nuclear and X-Ray Techniques	Prof. CHATT, A. (Dalhousie University, Canada)
09:40	[177] ORAL PRESENTATION - Analysis of Radioactive Waste Waters and Sludges int he Hungarian VVER NPP Paks	Prof. PÁTZAY, György (BME KKFT, Hungary)
09:55	[154] ORAL PRESENTATION - Nuclear Forensics: age determination by the 231Pa/235U ratio	Dr. MENDES, Mickael (CEA, France)
10:10	[173] ORAL PRESENTATION - Prompt Gamma Activation Analysis close to Detection Limits	Dr. KUDEJOVA, Petra (Technische Universitaet Muenchen, Forschungsneutronenquelle Heinz Maier-Leibnitz (FRM II), Garching, Germany)
10:25	[175] ORAL PRESENTATION - Enhancing the dynamic range for high boron concentrations in low neutron capture cross-section matrices with Prompt Gamma Activation Analysis	Mr. SOELLRADL, Stefan (Paul Scherrer Institute & Universität Bern, Switzerland)
10:40	[44] ORAL PRESENTATION - Comparison of Quantitative Neutron Capture Radiography, Inductively Coupled Plasma Mass Spectrometry, and Prompt Gamma Activation Analysis for Boron Determination in Biological Samples	Dr. SCHÜTZ, Christian (Institute for Nuclear Chemistry, University of Mainz, Fritz-Strassmann-Weg 2, D-55099 Mainz, Germany)
10:55	[80] ORAL PRESENTATION - On the development of a rapid method for the concentration and separation of radiostrontium from water samples based on a new Sr selective resin	Dr. HAPPEL, Steffen (TrisKem International, Bruz, France)
11:10	[54] ORAL PRESENTATION - Separation of Uranium and Polonium in drinking water by calix[6]arene columns	Dr. BOUVIER-CAPELY, Céline (IRSN/PRP-HOM/SDI, France)

#### **Coffee break** - (11:30-12:00)

#### Session dedicated to Exhibitors - (12:00-13:00)

- Conveners: Prof. Bonardi, Mauro L. (UNIMI and INFN - Milano, Italy)

#### **Lunch** - (13:00-14:00)

# <u>Session 11: Education and training in radiochemistry and dissemination of culture in nuclear and radiochemistry (session organized by CINCH consortium)</u> - (14:00-15:35)

- Conveners: Dr. Zeisler, Rolf (NIST, USA); Dr. Cuttone, Giacomo (Istituto Nazionale di Fisica Nucleare, LNS, Italy)

time	[id] title	presenter
14:00	[141] OPENING LECTURE - CINCH - Cooperation in education In Nuclear Chemistry	Prof. JOHN, Jan (Czech Technical University in Prague, Brehova 7, 115 19 Prague, Czech Republic)
14:20	[248] INVITED LECTURE - Nuclear and radiochemistry education in European Universities	Prof. LEHTO, Jukka (Laboratory of Radiochemistry, University of Helsinki, Finland)
14:40	[267] INVITED LECTURE - Nuclear and Radiochemistry Training in the European system of Accumulation and Transfer of Credits for Vocational Education and Training in Europe (ECVET)	Dr. RETEGAN, Teodora (Chalmers University of Technology)
15:00	[265] INVITED LECTURE - Skills and Knowledge Structure Needs - End-users' View	Prof. HANSON, Bruce (University of Leeds)
15:20	[38] ORAL PRESENTATION - Curriculum Development for Nuclear Fuel Chemistry, Reprocessing and Separation Chemistry, and Radioactive Waste Management at the Pennsylvania State University	Prof. UNLU, Kenan (The Pennsylvania State University, USA)

# <u>Panel Discussion: Minimum Requirements for a Master's Degree in Nuclear and Radiochemistry - Towards European Master's Degree - (15:35-16:35)</u>

- Conveners: John, Jan (CTU Prague; Czeck Republic)

time [id] title	presenter
15:35 [266] Panel Discussion - ● Introduction: Prof. J. Lehto; ● panel member; ● Discussion: 10 minutes; ● Panel Summa	1 ' 1 '

Boat Trip with Gala Dinner - (17:15-23:00)

### Friday 21 September 2012

### <u>Session 12 - Radioactive elements in the environment, radiation archeometry and Health Physics - (08:00-10:40)</u>

- Conveners: Prof. Ioannidou, Alexandra (ARISTOTLE UNIVERSITY OF THESSALONIKI, Greece); Prof. Groppi, Flavia (LASA, Università degli Studi di Milano and INFN-Milano, Italy)

time	[id] title	presenter
08:00	[60] INVITED LECTURE - The Behavior of Actinide Elements in Contaminated Environments	Prof. CLARK, Sue (Washington State University, USA)
08:20	[216] INVITED LECTURE - Chemical dosimetry for BNCT mixed radiation field and conformal radiotherapy	Prof. GAMBARINI, Grazia (Università degli Studi di Milano, Italy)
08:40	[232] INVITED LECTURE - Determination of the isotopic ratio <sup>236</sup> U/ <sup>238</sup> U in environmental samples	Prof. WALLNER, Gabriele (Inst. of Inorganic Chemistry, Univ. of Vienna, Währingerstr. 42, A-1090 Vienna, Austria)
09:00	[90] INVITED LECTURE - Study of neptunium sorption on clay and clay minerals using X-ray absorption spectroscopy	Prof. REICH, Tobias (Johannes Gutenberg-Universität Mainz, Germany)
09:20	[229] INVITED LECTURE - Trace Element Analysis with high sensitivity spectrometry.	Dr. PREVITALI, Ezio (Istituto Nazionale di Fisica Nucleare, Sez. Milano Bicocca, Italy)
09:40	[113] ORAL PRESENTATION - Coupling actinide speciation and thermodynamics: Neptunium(VI) solubility and speciation in alkaline NaCl solutions	Dr. ALTMAIER, Marcus (Karlsruhe Institute of Technology, Institute for Nuclear Waste Disposal, Germany)
09:55	[57] ORAL PRESENTATION - Mobilisation of radionuclides and heavy metals from mill tailings at a former uranium mine in south east Finland	Ms. TUOVINEN, Hanna (University of Helsinki, Finland)
10:10	[161] ORAL PRESENTATION - Radioanalytical determinations and radioactivity measurements in the field of Radiation Protection: the experience of the Integrated Laboratory of Radioactivity Measurement and Monitoring of the ENEA Radiation Protection Institute	Dr. ARGINELLI, Dolores (ENEA-Italian National Agency for New Technologies, Energy and Sustainable Economic Development, Radiation Protection Institute, Integrated Laboratory of Radioactivity Measurement and Monitoring, Italy)

#### Coffee break - (10:40-11:00)

# <u>Session 13 (cn't of Session 12) - Radioactive elements in the environment, radiation archeometry and Health Physics - (11:00-13:40)</u>

- Conveners: Prof. Wallner, Gabriele (University of Vienna, Austria); Prof. Clark, Sue (Washington State University, USA)

time	[id] title	presenter
	I	Prof. SMODIŠ, Borut (Jožef Stefan Institute)
		Prof. MURAMATSU, Yasuyuki (Gakushuin University, Japan)

11:40	[108] INVITED LECTURE - Japanese Green Tea: radioactivity measurements, radiochemical extraction yield determination and some radioprotection considerations.	Dr. MANERA, Sergio (LENA - University of Pavia, Italy)
12:00	[65] INVITED LECTURE - Preservation of Cultural Heritage by Radioanalytical Techniques	Prof. NAVARRETE, Manuel (Faculty of Chemistry, National University of Mexico, Mexico)
12:20	[244] INVITED LECTURE - Detecting and evaluating minimal traces of radioisotopes in environment and foods	Prof. RANDACCIO, Paolo (University of Cagliari, Italy)
12:40	[122] ORAL PRESENTATION - Isotopic composition of uranium in aerosol samples collected at 120 km south-southwestern of Fukushima before and after the nuclear power plant accident	Dr. SHINONAGA, Taeko (Helmholtz Zentrum München, German Research Center for Environmental Health, Institute of Radiation Protection, Germany)
12:55	[2] ORAL PRESENTATION - Fukushima fallout at Thessaloniki, Greece (40°N) and Milano, Italy (45°N)	Prof. GROPPI, Flavia (LASASegrate, Università degli Studi di Milano, Italy)
13:10	[34] ORAL PRESENTATION - Plutonium radionuclides in stratospheric and tropospheric air: new evidences from measurements in high altitude aerosols	Dr. CORCHO ALVARADO, José Antonio (Institute of Radiation Physics, Lausanne University Hospital, Switzerland)
13:25	[95] ORAL PRESENTATION - Application of microbeam synchrotron techniques to determine the distribution and speciation of plutonium after uptake by Opalinus Clay	Dr. AMAYRI, Samer (Johannes Gutenberg-Universität Mainz, Institute of Nuclear Chemistry, 55099 Mainz, Germany)

**Lunch** - (13:40-14:30)

**Closing Cerimony** - (14:30-16:00)