Migration 2017

Barcelona

September 10 – 15, 2017

Final Programme

Slight changes and adjustments are still possible

Conference Committees

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Contacts

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Background

The MIGRATION conferences provide an international forum for the timely exchange of scientific information on chemical processes controlling the migration behaviour of actinides and fission products in natural aquifer systems. Experimental investigations and predictive modelling of these processes are the main topics of the conferences. The information generated from the MIGRATION conferences is the basis for the mechanistic understanding of the migration behaviour of long-lived radionuclides in the geosphere, which is essential for the long-term performance assessment of nuclear waste disposal.

The first MIGRATION conference was held in 1987 in Munich, Germany. It was followed by MIGRATION ‘89 in Monterey, California, USA; MIGRATION ‘91 in Jerez de la Frontera, Spain; MIGRATION ‘93 in Charleston, South Carolina, USA; MIGRATION ‘95 in Saint-Malo, France; MIGRATION ‘97 in Sendai, Japan, MIGRATION ‘99 at Lake Tahoe, Nevada, USA, MIGRATION ‘01 in Bregenz, Austria, MIGRATION ‘03 in Gyeongju, Korea, MIGRATION ‘05 in Avignon, France, MIGRATION ‘07 in Munich, MIGRATION ’09 in Kennewick, Washington, USA, Migration 2011 in Beijing, China, Migration 2013 in Brighton, UK and Migration 2015 in Santa Fe, New Mexico, USA

Scope

The MIGRATION conferences focus on recent developments in the fundamental chemistry of actinides, fission and activation products in natural aquifer systems, their interactions and migration in the geosphere, and the processes involved in modelling their geochemical behaviour.

The sessions in MIGRATION'17 cover the following areas:

A Aquatic chemistry of actinides and fission products

1) Solubility and dissolution
2) Solid solution and secondary phase formation
3) Complexation with inorganic and organic ligands
4) Redox reactions and radiolysis effects
5) Solid-water interface reactions
6) Colloid formation
7) Experimental methods
8) Computational chemistry

B Migration behaviour of radionuclides

1) Sorption/desorption phenomena in dynamic systems
2) Diffusion and other migration processes
3) Colloid migration
4) Effects of biological and organic materials
5) Field and large scale experiments
6) Natural analogues

C Geochemical and transport modelling

1) Data selection and evaluation
2) Coupling chemistry and transport
3) Development and application of models
4) Model validation
5) Safety assessment and repository concepts

D Case studies

E Cementitious systems / radionuclide behaviour in hyperalkaline solutions

Programme

SUNDAY (10. September)

15:00 **REGISTRATION**

17:00 **OPENING SESSION**

Chair: H. Geckeis (Germany) and J. Bruno (Spain)

DISCUSSION PANEL: SCIENCE IN RADIONUCLIDE MIGRATION: THE NEEDS OF THE END USERS.

The objective of the panel discussion is to provide insights into how scientific/technical results contribute to reduce uncertainties in the different aspects of the safety and performance assessment of radioactive waste repositories. This year, the Migration community celebrates the 30th anniversary of the Migration conferences. Along these years plenty of scientific communication and research papers have been produced, and a huge amount of resources have been allocated to research related to radionuclide migration both, by national and transnational programs. With the first-of-a-kind repository for spent nuclear fuel under construction in Finland, it is time to analyse what has been the contribution of this scientific community to improve the outcome for the end-users (waste management organizations) and also to pinpoint the priorities for present and future research in radionuclide/contaminant migration in view of the individual national programs. In addition, there are similarities in safety and research issues related to the safe disposal of radioactive and chemotoxic wastes. Even though the respective regulations differ from country to country, the question arises, how the outcome and concepts of Migration research can be applied to the general topic of environmental pollution. The panel discussion aims at advising researchers to focus and to potentially adjust future research. Distinguished expert panellists will present their views and will open the discussion with the audience.

Confirmed panellists:

- Stéphane Brassiness (ONDRAF, Belgium)
- Borje Torstenfelt (SKB, Sweden)
- Frederic Plas (ANDRA, France)
- Mariano Navarro (ENRESA, Spain)
- Keisuke Ishida (NUMO, Japan)
- Paul Mariner (Sandia, USA)

Moderator: Jordi Bruno (Amphos 21, Spain)

19:00 **RECEPTION**

MONDAY (11. SEPTEMBER)

9:00 CONFERENCE ANNOUNCEMENTS

SESSION 1 A2: SOLID SOLUTION AND SECONDARY PHASE FORMATION

Chair: *J. Bruno (Spain) and J.-I. Yun (Korea)*

9:15 THE RELEVANCE OF SOLID SOLUTION - AQUEOUS SOLUTION SYSTEMS TO THE SAFETY CASE FOR DEEP GEOLOGICAL DISPOSAL OF NUCLEAR WASTES **A2-1**
D. Bosbach, F. Brandt, M. Klinkenberg, V. Vinograd, J. Weber, G. Deissmann (INVITED) (Germany)

10:00 COFFINITE STABILITY AND IMPLICATIONS FOR SPENT NUCLEAR FUEL ALTERATION IN DEEP GEOLOGICAL DISPOSAL **A2-2**
L. Duro, J. Bruno, L. Z. Evins (Spain, Sweden)

10:25 ENVIRONMENT-SPECIFIC TRACE METAL PARTITION COEFFICIENTS IN CALCITE-WATER SYSTEMS DEEP IN FRACTURED GRANITE **A2-3**
H. Drake, F.A. Mathurin, T. Zack, T. Schäfer (Sweden, Germany)

10:50 BARITE RECRYSTALLIZATION IN THE PRESENCE OF ^{226}Ra AND ^{133}Ba **A2-4**
F. Heberling, V. Metz, J. Weber, M. Böttle, E. Curti, M. Klinkenberg, F. Brandt, H. Geckeis (Germany, Switzerland)

11:15 BREAK

SESSION 2 B2: DIFFUSION AND OTHER MIGRATION PROCESSES

Chair: *P. de Canniere (Belgium) and M. Siitari-Kauppi (Finland)*

11:35 ANION ACCESSIBLE POROSITY IN LOW POROSITY DENSE CLAY SEDIMENTS **B2-1**
C. Wigger, L.R. Van Loon (Switzerland)

12:00 INFLUENCE OF SALINITY AND TEMPERATURE ON THE DIFFUSION OF NEPTUNIUM(V) IN NATURAL CLAY **B2-2**
T. Reich, S. Amayri, P.J.B. Börner, R. Scholze (Germany)

12:25 MICROTOMOGRAPHY-BASED INTERGRANULAR NETWORK FOR THE SIMULATION OF RADIONUCLIDE DIFFUSION AND SORPTION IN A GRANITIC ROCK **C3-2**
A. Iraola, P. Trinchero, M. Voutilainen, B. Gylling, J.-O. Selroos, J. Molinero, O. Silva, U. Svensson, G. Deissmann, D. Bosbach (Spain, Finland, Sweden, Germany)

12:50 RELATIONSHIP BETWEEN DIFFUSION PROCESSES AND FABRIC PATTERN IN HIGH-GRADE METAMORPHIC ROCKS **B2-4**
V. Havlová, M. Zuna, L. Brázda, K. Verner (Czech Republic)

13:15 LUNCH BREAK

SESSION 3 A4: REDOX REACTIONS AND RADIOLYSIS EFFECTS

Chair: B. Grambow (France) and D. Bosbach (Germany)

15:00 REDOX REACTIONS AT MINERAL/WATER INTERFACES IN THE MULTIPLE BARRIER CONCEPT **A4-1**
L. Charlet, B. Ma, S. Chakraborty, M. Kang, A. Fernandez Martinez (INVITED) (France, India, China)

15:45 REDOX, SOLUBILITY AND SORPTION BEHAVIOUR OF PLUTONIUM IN THE PRESENCE OF ISOSACCHARINIC ACID AND CEMENT **A4-2**
A. Tasi, X. Gaona, D. Fellhauer, Th. Rabung, J. Rothe, M. Grivé, E. Colàs, J. Bruno, K. Källström, M. Altmaier, H. Geckeis (Germany, Spain, Sweden)

16.10 REDOX SPECIATION OF URANIUM WITH AMINOTRIS(METHYLENEPHOSPHONIC ACID) (ATMP) IN AQUEOUS MEDIUM **A4-3**
A. Srivastava, B.S. Tomar (India)

16:35 BREAK

SESSION 4 A3: COMPLEXATION WITH INORGANIC AND ORGANIC LIGANDS

Chair: *T. Sasaki (Japan) and X. Gaona (Germany)*

16:55 TEMPERATURE EFFECT ON THE FORMATION OF TERNARY CALCIUM URANYL CARBONATE COMPLEXES **A3-1**
Y. Jo, J.-I. Yun (South Korea)

17:20 ACTINIDE(IV)-ORGANIC COMPLEXES ISOLATED FROM AQUEOUS SOLUTION **A3-2**
K.E. Knope (USA)

17:45 SYNTHESIS AND STRUCTURAL CHARACTERIZATION OF MIXED IRON-URANIUM COMPOUNDS WITH BIDENTATE N-DONOR LIGANDS **A3-3**
S. Schöne, T. Radoske, J. März, T. Stumpf, A. Ikeda-Ohno (Germany)

18:10 OXIDATIVE STABILITIES OF NON-PERTECHNETATE SPECIES IN ALKALINE MATRICES TYPIFYING HANFORD TANK WASTE **A3-4**
S. Chatterjee, T.G. Levitskaia, G.B. Hall, Y. Du, M.H. Engelhard, N.M. Washton, V. Shutthanandan, E.D. Walter (USA)

18:35 END OF ORAL TALKS OF MONDAY

SESSION 5 POSTER SESSION I (19:00 – 22:00)

PA2 SOLID SOLUTION AND SECONDARY PHASE FORMATION

PA2-1 STUDY OF NEPTUNIUM(V) CARBONATE REACTIVITY IN THE NA-K-U(VI)-CO_3-H_2O SYSTEM: FIRST APPLICATION OF Np M5 HR-XANES FOR CHARACTERIZATION OF Np OXIDATION STATES
I. Pidchenko, D. Schild, T. Prüßmann, V. Montoya, X. Gaona, E. Bohnert, J. Rothe, R. Baker, T. Vitova (Germany, Ireland)

PA2-2 RETENTION OF AN(III)/LN(III) BY CALCITE: INFLUENCE OF MINERAL FORMATION ON CONTAMINANT SPECIATION
M. Schmidt, S. E. Hellebrandt, E. V. Johnstone, S. Hofmann, A. Barkleit, N. Jordan, A. Cherkouk, T. Stumpf (Germany)*

PA2-3 RETENTION OF RADIUM IN THE SOLID SOLUTION - AQUEOUS SOLUTION SYSTEM (Ba, Sr,Ra)SO_4 + H_2O
F. Brandt, V.L. Vinograd, D.A. Kulik, M. Klinkenberg, B. Winkler, D. Bosbach (Germany, Switzerland)

PA2-4 EXPERIMENTAL STUDIES IN THE SYSTEM (Ba, Sr,Ra)SO_4 + H_2O
M. Klinkenberg, F. Brandt, J. Weber, J. Barthel, D. Bosbach (Germany)

PA2-5 SYNTHESIS AND CHARACTERIZATION OF URANYL SECONDARY PHASES PRECIPITATED IN THE PRESENCE OF HYDROGEN PEROXIDE UNDER HYPER-ALKALINE CONDITIONS
I. Soriano, J. Bastos-Arrieta, A. Espriu-Gascon, J. Giménez, I. Casas, J. de Pablo (Spain)

PA2-6 ACTINIDE INCORPORATION INTO PRISTINE AND STABILIZED ZIRCONIA PHASES
M. Eibl, N. Huittinen, T. Stumpf (Germany)

PA2-7 STUDY OF THE HYDROTHERMAL SYNTHESIS OF $ThSiO_4$, $USiO_4$ AND $CeSiO_4$ AIMING AT DETERMINING THE CONDITIONS OF $PuSiO_4$ FORMATION
P. Estevenon, E. Welcomme, S. Szenknect, A. Mesbah, P. Moisy, C. Poinssot, N. Dacheux (France)

PA2-8 PLUTONIUM INCORPORATION ONTO IRON OXIDE MINERALS
E. Balboni, M. Zavarin, A. Kersting (USA)

PA2-9 SOLID PHASE TRANSFORMATION OF Np(V) AT ELEVATED TEMPERATURE IN NaCl, $CaCl_2$ AND $MgCl_2$ SOLUTIONS
J.-Y. Lee, D. Fellhauer, X. Gaona, K. Dardenne, A.M. Johnsen, M. Altmaier (Germany, USA)

PA2-10 CRYSTAL STRUCTURES AND SOULBILITIES OF RADIUM SULFATE AND CARBONATE
A. Matyskin, P. Brown, C. Ekberg (Sweden, Australia)*

PA2-11 SOLUBILITY OF CyMe4-BTBP IN VARIOUSE SOLUTIONS CONTAINING PHENYL TRIFLUOROMETHYL SULFONE, CYCLOHEXANONE AND 1-OCTANOL IN COMBINATION WITH TBP
J. Halleröd, C. Ekberg, E. Aneheim (Sweden)

PA2-12 STUDY OF THE THERMAL STABILITY OF STUDTITE BY IN SITU RAMAN SPECTROSCOPY AND DFT CALCULATIONS
J. Cobos, F. Colmenero, L. J. Bonales, V. Timón (Spain)

PA5 SOLID-WATER INTERFACE REACTIONS

PA5-1 SORPTION OF 60Co, 90Sr, 90Y, AND 137Cs FROM AQUEOUS SOLUTIONS ONTO Mg-Ln LAYERED DOUBLE HYDROXIDES (Ln = Ce, Pr, Sm, Gd)
S. Kulyukhin, E. Krasavina, I. Rumer (Russia)

PA5-2 RADIOACTIVE CESIUM DESORPTION BY SEAWATER FROM SUSPENDED PARTICLES OF RIVER WATER
A. Kirishima, M. Onodera, D. Akiyama, N. Sato, S. Nagao (Japan)

PA5-3 THERMODYNAMIC MODELLING OF THE RADIONUCLIDES SORPTION ONTO GOETHITE: INFLUENCE OF SURFACE SATURATION AND IONIC STRENGTH
Yu. Nevolin, A. Larina, A. Romanchuk, S. Kalmykov (Russia)

PA5-4 FUNCTIONALIZED HYDROTHERMAL CARBON DERIVED FROM POMELO PEEL FOR THE SEPARATION OF URANIUM FROM AQUEOUS SOLUTION
F. Li, H. Wang, J. Yang, H. Tu, J. Liao, Y. Yang, N. Liu (China)

PA5-5 REMOVAL OF STRONTIUM IONS BY METAL IONS DOPED HEXAGONAL WO_3
W. Mu, Q. Yu, X. Li, H. Wei, Y. Jian (China)

PA5-6 SORPTION PROPERTIES OF SELECTED RADIONUCLIDES ON SEDIMENTARY ROCKS IN SALINE SOLUTIONS
T. Yang, P. Vilks, P. Bertetti, S. Nagasaki, M. Jensen, F. Garisto, M. Hobbs (Canada)

PA5-7 SORPTION OF Np(IV) ON ILLITE, SHALE AND MX-80 IN HIGH IONIC STRENGTH SOLUTIONS
S. Nagasaki, T. Yang, T. Saito, J. Riddoch (Canada, Japan)

PA5-8 EFFECTS OF HYDROTHERMALLY-ALTERED ILLITE ON RADIOCESIUM ADSORPTION
J. Hwang, S. Choung, W. S. Han, W. Shin (South Korea)*

PA5-9 SYNTHESIS AND CARACTERIZATION OF GRAPHENE OXIDE BASED MATERIAL FOR RADIOACTIVE IODINE REMOVAL
S. Han, W.S. Kim, W. Um, J. Heo (South Korea)

PA5-10 INTERACTIONS BETWEEN U(VI) DOPED CSH PHASES AND HIGH SALINE BRINES
J-M. Wolter, K. Schmeide, T. Stumpf (Germany)

PA5-11 LONG-TERM GEOCHEMICAL BEHAVIOR OF URANIUM IN GRANITE OF THE KURT SITE
M. H. Baik , J. K. Lee , J. D. Shin (South Korea)

PA5-12 INVESTIGATION OF CHABAZITIC MATERIALS AS SORPTION SINK FOR Cs-137 IN CEMENTITIOUS AQUEOUS SOLUTIONS
P. Misaelides , S. Sarri , F. Noli , N. Kantiranis , A. Filippidis , B. de Blochouse, A. Maes, E. Breynaert (Greece, Belgium)

PA5-13 INTERACTION OF ACTINIDES AND LANTHANIDES WITH RAW- AND MODIFIED NATURAL MICROPOROUS MATERIALS: A CONCISE REVIEW
P. Misaelides (Greece)

PA5-14 SORPTION OF RADIONUCLIDES ON GLAUCONITE OF THE NEOGENE: SORPTION OF 137Cs TRACER
Y. Bruneel, L. Van Laer, E. Smolders (Belgium)

PA5-15 KINETIC STUDIES ON THE SORPTION OF STRONTIUM ON VARIOUS SOILS
W. Schulz, B. Riebe, D. Gupta, H. Alemdar, G. Steinhauser, C. Walther (Germany)

PA5-16 EXAMINATION OF U(VI) SORPTION ON TiO_2 (RUTILE): EFFECT OF TEMPERATURE (25 - 80 °C) AND IONIC STRENGTH (0.01 - 1.00 M)
A.F.J. Schnurr, B.A. Powell (USA)

PA5-17 U(VI) SORPTION BY Ca-BENTONITE UNDER ALKALINE AND SALINE CONDITIONS AS A FUNCTION OF pH AND CARBONATE CONTENT
T. Philipp, K. Schmeide, T. Stumpf (Germany)

PA5-18 THE SURFACE PROCESSES OF Se(IV) ON γ-ALUMINA IN THE PRESENCE OF CARBONATE. EVALUATING COMPETITIVE EFFECTS ON THE SORPTION BEHAVIOR
H. Foerstendorf, N. Mayordomo, N. Jordan, U. Alonso, T. Missana, K. Schmeide (Germany, Spain)

PA5-19 MOLYBDENUM RETENTION ONTO CEMENT PASTES AND CEMENT PURE PHASES
M. López-García, M. Grivé, J. Olmeda, P. Henocq (Spain, France)

PA5-20 ALKALIS RETENTION ON CALCIUM SILICATE HYDRATE PHASES (CSH)
T. Missana, M. García-Gutiérrez, M. Mingarro, U. Alonso (Spain)

PA5-21 RADIONUCLIDE SORPTION ON CZECH CRYSTALLINE ROCKS
K. Kolomá, Z. Tomášová, V. Brynych, V. Havlová (Czech Republic)

PA5-22 CHEMICAL AND MINERALOGICAL CHANGES AT THE INTERFACE BETWEEN CEMENTITIOUS MATERIALS AND GROUNDWATER
E. Rastrick, M. Isaacs, D. Read (UK)

PA5-23 KINETIC AND EQUILIBRIUM STUDIES OF Cs (I), Sr (II) AND Eu(III) ION ADSORPTION ON A NATURAL SANDY SOIL
L. Qiu, K. Scott (Canada)

PA5-24 IMPACT OF TEMPERATURE ON U(VI) SORPTION BY CALLOVO-OXFORDIAN CLAY ROCK
F. Maia, M. Grivé, B. Madé, G. Montavon (France, Spain)

PA5-25 STRONTIUM SORPTION IN SMECTITE AND γ-ALUMINA MIXTURES
N. Mayordomo, U. Alonso, T. Missana (Spain)

PA5-26 SELENIUM (IV) SORPTION ON GRIMSEL GRANODIORITE AND ITS MAIN MINERALS
X. Li, J. Ikonen, A. Lindberg, S. Holgersson, M. Siitari-Kauppi (Finland, Sweden)

PA5-27 COMPARISON OF EUROPIUM AND NEPTUNIUM ADSORPTION TO ALUMINUM (HYDR)OXIDE MINERALS
T. Baumer, P. Kay, A.E. Hixon (USA)

PA5-28 KINETIC STUDIES OF EUROPIUM(III) AND NEPTUNIUM(V) SORPTION TO ALUMINUM (HYDR)OXIDE MINERALS
T. Baumer, A.E. Hixon (USA)

PA5-29 INTERLAYER EXPANSION OF PHLOGOPITE AND ITS ROLE IN Th(IV) ADSORPTION CAPACITY IMPROVEMENT
H. Wu, P. Liu, X. Zhao, Q. Fan2, W. Wu (China)

PA5-30 THE SORPTION BEHAVIOR OF U(VI) ONTO THE SOIL TAKEN FROM SOUTHWEST CHINA
Y.L Shi, K.F Wang, X.Y Yang, L. Du, Z. Tan, C.L. Liu (China)

PA5-31 UPTAKE OF ACTINIDES BY CALCIUM SILICATE HYDRATE (CSH) PHASES
V. Häußler, S. Amayri, T. Reich (Germany)

PA5-32 EFFECT OF HIGHLY CONCENTRATED SALINE SOLUTIONS ON URANIUM AND RADIUM SORPTION BY C-S-H PHASES AND HARDENED CEMENT PASTES
P. Henocq, N. Macé, C. Landesman, M. Grivé (France, Spain)

PA5-33 MODELING THE SORPTION OF Np(V) ON Na-MONTMORILLONITE
R. Scholze, S. Amayri, T. Reich (Germany)

PA5-34 ADSORPTION PROPERTIES OF RADIOACTIVE CESIUM TO BLACK CARBON UNDER VARIOUS COMBUSTION CONDITIONS
*S. Jeon, S. Choung *, W. S. Han, W. Shin, J. Hwang (South Korea)*

PA5-35 INFLUENCE OF CARBONATE AND GLUCONATE ON THE Eu(III) / Cm(III) SORPTION ONTO CLAY MINERALS: BATCH SORPTION, LASER SPECTROSCOPY AND MODELLING
F. Rieder, T. Rabung, H. Geckeis (Germany)

PA5-36 Th ADSORPTION ON MnO_2-IMPREGNATED ACTIVATED CARBON
C. Kütahyali Aslani, Y. Seçkiner, M. Eral (Turkey)

PA5-37 INVESTIGATION OF THORIUM ADSORPTION ONTO $KMnO_4$ MODIFIED CARBON NANOTUBES BY USING CENTRAL COMPOSITE DESIGN
C. Endes, C. Kutahyali Aslani, M.A.A. Aslani (Turkey)

PA5-38 SORPTION OF Np(V) AND Cs(I) ONTO VARIOUS CLAYS
A. Semenkova, A. Romanchuk, V. Krupskaya, P. Verma, P. K. Mohapatra, S. Kalmykov (Russia, India)

PA5-39 SORPTION OF Cs(I) ON THE BENTONITE SAMPLES FROM KHAKASSIA (RUSSIA) AND KUTCH (INDIA) DEPOSITS
M. Evsyunina, V. Petrov, I. Vlasova, S. Kalmykov (Russia)

PA5-40 COMPETITIVE METAL SORPTION ON ILLITE
M. Marques Fernandes, B. Baeyens (Switzerland)

PA5-41 ADSORPTION OF URANYL ON PURE CALCIUM SILICATE HYDRATE IN THE PRESENCE OF ORGANIC ADDITIVES
I. Androniuk, C. Landesman, A.G. Kalinichev, P. Henocq (France)

PA5-42 REMOVAL OF U(VI) FROM AQUEOUS SOLUTION BY AMINO FUNCTIONALIZED FLAKE GRAPHITE PREPARED BY PLASMA TREATMENT
J. Li (China)

PA5-43 CHARACTERIZATION STUDY OF U AND Cs ADSORPTION ONTO MX-80 BENTONITE BY XPS AND XANES TECHNIQUE
W. T. Liu, S.C. Tsai, T.L. Tsai, C. P. Lee, C. H. Lee (Taiwan)

PA7 EXPERIMENTAL METHODS

PA7-1 DETECTION OF LANTHANIDES AND ACTINIDES IN SOLUTIONS BY LUMINESCENCE/CHEMILUMINESCENCE LASER SPECTROSCOPY
I.N. Izosimov (Russia)

PA7-2 EFFECTS OF PHOTOCHEMICAL REACTION ON THE LUMINESCENCE QUENCHING OF U(VI) SURFACE COMPLEXES ON AMORPHOUS SILICA
E. C. Jung, M. H. Baik, H. -R. Cho, H. Kim, W. Cha (South Korea)

PA7-3 MOBILITY OF METALS IN CLAY AS A POTENTIAL HOST ROCK FOR A HLW DISPOSAL - FROM BATCH AND CE-ICP-MS SPECIATION TO COLUMN EXPERIMENTS USING LC-ICP-MS
R. Kautenburger, K. Brix, C. Hein, J. M. Sander, G. Kickelbick (Germany)

PA7-4 SIMULTANEOUS QUANTIFICATION OF IODINE AND HIGH VALENT METALS VIA ICP-MS UNDER ACIDIC CONDITIONS IN COMPLEX MATRICES
K. Brix, R. Kautenburger, C. Hein, J.M. Sander, G. Kickelbick (Germany)

PA7-5 RETAINING OF ELEMENTS RELEVANT FOR NUCLEAR WASTE DISPOSAL UNDER HIGH SALINITY CONDITIONS - APPLICATION OF A TRANSIENT ICP MS MEASUREMENT
C. Hein, K. Brix, J. M. Sander, R. Kautenburger (Germany)

PA7-6 µTRLFS: SPATIALLY-RESOLVED SORPTION STUDIES OF Eu(III) ON ÄSPÖ GRANITE WITH TIME-RESOLVED LASER FLUORESCENCE SPECTROSCOPY
K. Molodtsov, M. Schmidt (Germany)

PA7-7 ISOTHERMAL TITRATION CALORIMETRY OF SELENIUM(IV) SORPTION PROCESSES ONTO IRON OXIDES
N. Jordan, C. Reder, H. Foerstendorf, B. Drobot, K. Fahmy (Germany)

PA7-8 AN INTEGRATED SURFACE SCIENCE APPROACH FOR THE STUDY OF SPENT FUEL CORROSION PROCESSES
A. Seibert, P. Cakir, R. Eloirdi, F. Huber and T. Gouder (EU)

PA7-9 SPECIATION OF RADIOCARBON IN REPOSITORY DEPTH CONDITIONS
J. Lempinen, R. Kietäväinen, L. Ahonen, J. Lehto (Finland)

PA7-10 DIRECT DETECTION AND IDENTIFICATION OF URANIUM(VI)-BEARING SOLIDS BY TRLFS AND CHEMOMETRICS ANALYSIS
Th. Vercouter, E. Vors, J.-B. Sirven, M. Lecointe, S. Szenknect, A. Wattinne, M. Descostes (France)

PA7-11 NOVEL NANOTECHNOLOGY APPROACHES FOR NUCLEAR FIELD
L. Colldeforns, J. Mora, A. Espriu-Gascon, J. Bastos-Arrieta, J. Giménez, I. Casas, J. de Pablo (Spain)

PA7-12 A MULTI-METHOD APPROACH FOR THE INVESTIGATION OF COMPLEX ACTINIDE SYSTEMS: URANIUM(VI) INTERACTIONS WITH DNA AND SUGAR PHOSPHATES
A. Rossberg, A. Barkleit, S. Tsushima, A. C. Scheinost, P. Kaden, T. Stumpf (Germany)

PA7-13 SQUARE-PLANAR PLATINUM(II) BASED RECEPTORS FOR HIGHLY SELECTIVE DETECTION OF AQUEOUS PERTECHNETATE
S. Chatterjee, A.E. Norton, W.B. Connick, T.E. Albrecht-Schmitt, T.G. Levitskaia (USA)

PA7-14 IMAGING RADIONUCLIDE TRANSPORT IN POROUS MEDIA
B.A. Powell, M. Dogan, B. Erdman, S. Moysey, T.A. DeVol, F. Beekman, H. Groen, R.M. Ramakers, D. Kaplan (USA, Netherlands)

PA7-15 CHARACTERIZATION OF HETEROGENEOUS PORE AND MINERAL STRUCTURE OF CRYSTALLINE ROCK SAMPLES FROM ÄSPÖ AND OLKILUOTO
M. Voutilainen, M. Siitari-Kauppi, J. Sammaljärvi, J. Parkkonen, A. Miettinen, M. Yli-Kaila, L. Koskinen, B. Gylling, J.-O. Selroos (Finland, Sweden)

PA7-16 REDOX SPECIATION OF THE ACTINIDES Th AND U-AM USING CE-ICP-MS
C. Willberger, S. Amayri, V. Häußler, R. Scholze, T. Reich (Germany)

PA7-17 URANIUM PHOSPHORESCENCE - TEMPERATURE INFLUENCE TO THE HOT BAND
G. Geipel, T. Stumpf (Germany)

PA8 COMPUTATIONAL CHEMISTRY

PA8-1 SPIN ORBIT EFFECTS IN Am(III)/Eu(III)-WATER CLUSTERS
M. Trumm, P. Lindqvist-Reis, C. Adam, B. Schimmelpfennig (Germany)

PA8-2 QUANTUM CHEMICAL MODELING OF U(VI) SORPTION ON CALCIUM SILICATE HYDRATE
A. Kremleva, S. Krüger, N. Rösch (Germany)

PA8-3 SORPTION OF SELENIUM SPECIES ONTO BIOTITE AND CALCITE SURFACES: DFT STUDY
E. Puhakka, X. Li, J. Ikonen, M. Siitari-Kauppi (Finland)

PA8-4 A DENSITY FUNCTIONAL THEORY APPROACH TO PREDICTING URANIUM MOBILITY IN THE SUBSURFACE IN THE PRESENCE OF ORGANIC LIGANDS
M.E. Kirby, A. Simperler, J. Sonnenberg, S. Krevor, D.J. Weiss (UK, USA)

PB1 SORPTION/DESORPTION PHENOMENA IN DYNAMIC SYSTEMS

PB1-1 FATE AND BEHAVIOUR OF TRITIUM IN ENVIRONMENTAL CARBOHYDRATE MATRICES
O. Péron, C. Gégout, B. Reeves, H.H. Le Thi, L. Pastor, E. Fourré, G. Rousseau, F. Siclet, C. Landesman, G. Montavon (France)

PB1-2 EFFECT OF HUMIC ACID ON URANIUM(VI) RETENTION AND TRANSPORT THROUGH QUARTZ COLUMNS WITH VARYING PH AND ANION TYPE
L. Du, P. Wang, X. Li, N. Liu (China)

PB1-3 FAST MINIATURISED COLUMN EXPERIMENTS FOR HOST ROCK CHARACTERISATION OF FINAL DISPOSAL SITES IN CLAY
J M. Sander, K. Brix, C. Hein, R. Kautenburger, G. Kickelbick (Germany)

PB1-4 BLOCK-SCALE STUDY ON RADIONUCLIDE, MONTMORILLONITE COLLOID AND GRANITE INTERACTION
V. Suorsa, P. Hölttä, F. Huber, T. Schäfer (Finland, Germany)

PB1-5 LONG-TERM DESORPTION OF RADIOACTIVE CESIUM FROM SOILS AND MINERALS
T. Saito, K. Murota (Japan)

PB1-6 ALTERATION OF 'HOT" PARTICLES IN FLOWING COLUMN SYSTEMS - A SYNCHROTRON MICROFOCUS STUDY
W.R. Bower, K. Morris, I.C. Lyon, F.R. Livens, J.F.W. Mosselmans, G.T.W. Law (Japan)

PB3 COLLOID MIGRATION

PB3-1 MOBILITY OF DISSOLVED ORGANIC MATTER IN LOW-POROUS MEDIA: MOLECULAR WEIGHT VS HYDRAULIC CONDITIONS
D. Durce, N. Maes, M. Van Gompel, S. Brassines (Belgium)

PB3-2 THE INFLUENCE OF BENTONITE COLLOIDS ON NEPTUNIUM(V) MIGRATION IN GRANITIC ROCK
O. Elo, P. Hölttä, N. Huittinen (Finland, Germany)

PB3-3 COLLOID-FACILITATED Pu TRANSPORT ON CLAY COLLOIDS: SORPTION/DESORPTION RATES AND IRREVERSIBLE PROCESSES
M. Zavarin, J. Begg, C. Joseph, P. Zhao, C. Durrant, A.B. Kersting (USA, Germany)

PB3-4 PLUTONIUM INTRINSIC COLLOIDS: THEIR STABILTIY AND PERSISTANCE IN NATURE
A.B. Kersting, J. Begg, E. Balboni, T. Parsons-Moss, J. Shusterman, P. Zhao, M. Zavarin (USA)

PB5 FIELD AND LARGE-SCALE EXPERIMENTS

PB5-1 MODELING THE IN-SITU LONG-TERM SORPTION AND DIFFUSION EXPERIMENT (LTDE-SD) AT THE ÄSPÖ HARD ROCK LABORATORY IN SWEDEN: SCALING APPROACH FROM LABORATORY TO IN-SITU CONDITION
Y. Tachi, T. Ito, B. Gylling (Japan, Sweden)

PB5-2 OXIDATION OF NpO_2(S) AS A LIMITING STEP IN NEAR-SURFACE VADOSE ZONE TRANSPORT OF NEPTUNIUM: LABORATORY AND FIELD LYSIMETER STUDIES
K. Peruski, M. Maloubier, D.I. Kaplan , P.M. Almond, B.A. Powell (USA)

PB5-3 RADIONUCLIDE LEACHING AND MINERAL CHARACTERIZATION OF CORE SAMPLES RECOVERED FROM THE SALTSTONE DISPOSAL FACILITY, AIKEN, SC USA
D.I. Kaplan, B.A. Powell, W. Um, J. C. Seaman, R. Kukkadapu, O. Qafoku, Y. Du, M.E. Bowden, D. Li, Y. Arai (USA)

PB5-4 MEASUREMENT OF URANIUM ISOTOPES AND ITS DISTRIBUTION COEFFICIENT IN FUKUSHIMA CONTAMINATED SOILS TO UNDERSTAND MOBILITY
S.K. Sahoo, S. Mishra, T. Aono, S. Tokonami (Japan, India)

PB5-5 SORPTION CHARACTERISTICS OF CAESIUM, STRONTIUM AND URANIUM IN FUKUSHIMA CONTAMINATED SOIL SAMPLES
S. Kasar, S.K. Sahoo, N. Kavasi, H. Arae, A. Sorimachi, Y. Omori, T. Aono (Japan)

PB5-6 IN-SITU MIGRATION EXPERIMENT WITH RADIONUCLIDES IN GRANITIC ROCK (JOSEF UNDERGROUND LABORATORY, CZECH REPUBLIC)
M. Zuna, V. Havlová, D. Trpkošová, D. Baratová, L. Gvoždík, K. Sosna, J. Smutek, J. Svoboda, L. Staš, K. Souček (Czech Republic)

PB5-7 THE LONG-TERM CEMENT STUDIES (LCS) AT THE GRIMSEL TEST SITE: RESULTS AFTER OVERCORING A 6 YEARS LONG IN-SITU HIGH-PH EXPERIMENT IN A WATER CONDUCTING FRACTURE ZONE
N. Giroud, A. Martin, G.W. Lanyon, U. Mäder, L. Fields, A.E. Milodowski (Switzerland)

PC2 COUPLING CHEMISTRY AND TRANSPORT

PC2-1 ASSESSING NICKEL TRANSPORT IN THE BEDROCK AT SFL USING A SMART KD APPROACH
P. Trinchero, S. Painter, H. Ebrahimi, B. Gylling, J.-O. Selroos, J. Molinero (Spain, USA, Sweden)

PC2-2 MODELING OF GEOCHEMICAL EVOLUTION AND REACTIVE TRANSPORT OF RADIONUCLIDES IN THE NEAR-FIELD OF A DISPOSAL CELL FOR HIGH-LEVEL VITRIFIED WASTE IN THE CALLOVO-OXFORDIAN CLAYSTONE
O. Silva, Marek Pekala, D. García, J. Molinero, M. Grivé, B. Cochepin, I. Munier, L. Trenty (Spain, Switzerland, France)

PC2-3 WATER AND GAS TRANSPORT IN A GENERIC CEMENTED WASTE PACKAGE CONSIDERING SPATIO-TEMPORAL VARIATIONS IN CHEMICAL CONDITIONS
G. Kosakowski, Y. Huang, H. Shao, E. Wieland (Switzerland, Germany)

PC2-4 REACTIVE TRANSPORT MODELING OF CONCRETE DEGRADATION IN A DEEP GEOLOGICAL LILW REPOSITORY
A. Idiart, H. von Schenck, O. Wessely, J. Molinero (Spain, Sweden)

PC2-5 REPOSITORY NEAR FIELD EVOLUTION AND RADINUCLIDE MIGRATION STUDIED BY REACTIVE TRANSPORT MODELLING
V. Montoya, D. Fellhauer, V. Metz, H. Geckeis (Germany)

PC2-6 COUPLING THE TRANSPORT OF SALINITY AND ACIDITY IN REACTIVE POROUS MEDIA
C.J. McNeece, M.A. Hesse (USA)

PC2-7 COMBINED SIMULATION OF METAL CORROSION, MICROBIAL DEGRADATION OF ORGANIC AND THERMODYNAMIC SOLUTION AND MINERAL SPECIATION IN HIGHLY SALINE CONDITIONS
L. Wissmeier, N. Hubschwerlen, J. Poppei, M. Niemeyer (Switzerland)

PC2-8 SOLUTE TRANSPORT IN FRACTURED ROCKS: AN ANALYSIS OF THE RELATIVE SIGNIFICANCE OF FICKIAN DISPERSION AND VELOCITY DISPERSION
S. Meng, L. Liu, L. Moreno, I. Neretnieks (Sweden)

PC4 MODEL VALIDATION

PC4-1 SKB GWFTS TASK FORCE. PREDICTIVE MODELING OF A MATRIX DIFFUSION EXPERIMENT IN GNEISS AT ONKALO (FINLAND)
J. M. Soler, M. Löfgren, K. Nilsson, G. W. Lanyon, B. Gylling, P. Vidstrand, I. Neretnieks, L. Moreno, L. Liu, S. Meng, U. Svensson, P. Trinchero, A. Iraola, H. Ebrahimi, J. Molinero, G. Deissmann, J. Říha, M. Hokr, A. Vetešník, D. Vopálka, L. Gvoždík, D. Trpkošová, V. Havlová, D.-K. Park, S.-H. Ji, Y. Tachi, T. Ito (Spain, Sweden, UK, Germany, Czech Republic, South Korea, Japan)

PC4-2 THE GTS-LTD MONOPOLE-2 EXPERIMENT AT GRIMSEL. PREDICTIVE MODELING AND COMPARISON WITH MONITORING DATA
J. M. Soler, A. J. Martin, G. W. Lanyon, V. Havlová, M. Siitari-Kauppi, Y. Tachi (Spain, Switzerland, UK, Czech Republic, Finland, Japan)

PC4-3 IS THERE A UNIVERSAL LINEAR FREE ENERGY RELATION FOR SURFACE COMPLEXATION IN GEOMEDIA?
J. Crawford (Sweden)

PC4-4 RADIONUCLIDE SOLUBILITY IN CZECH GRANITIC MASSIF GROUNDWATER
M. Klajmon, V. Havlová, K. Kolomá (Czech Republic)

PC4-5 MICRO-CONTINUUM SIMULATION OF RADIONUCLIDE MIGRATION IN A SYNTHETICALLY GENERATED FRACTURED-MATRIX SYSTEM: APPLICATION OF HIGH PERFORMANCE COMPUTING TO EVALUATE EFFECTS OF SYSTEM HETEROGENEITY AT THE MICROMETER SCALE
G. Deissmann, P. Trinchero, J. Molinero, I. Puigdomenech, B. Gylling, H. Ebrahimi, D. Bosbach (Germany, Spain, Sweden)

PC4-6 SPECIATION OF URANIUM: VERIFICATION OF A DATABASE BY MODELLING TECHNIQUES AND COMPARATIVE EXPERIMENTS
E. L. Mühr-Ebert, F. Wagner, C. Walther (Germany)

PC4-7 DISSOLUTION-PRECIPITATION PROCESSES IN POROUS MEDIA: EXPERIMENTAL BENCHMARKS FOR REACTIVE TRANSPORT MODELLING AT DIFFERENT SCALES
J. Poonoosamy, G. Kosakowski, G. Deissmann, N. Prasianakis, F. Brandt, S. Rohmen, D. Kolheyer, D. Bosbach (Germany, Switzerland)

PD SAFETY CASE

PD-1 WIPP -PILOT PLANT TO OPERATING REPOSITORY AND BACK AGAIN-THE JOURNEY AND LESSONS LEARNED ALONG THE WAY
P.Thakur, H. Khaing, R. Hardy (USA)

PD-2 USE OF SAPROPHYTIC FUNGI FOR SHORT-TO-MID-TERM STABILIZATION OF RADIONUCLIDES IN SOILS: THE BIOVESTRA PROJECT
W. Schulz, D.K. Gupta, M. Köhler, E. Kothe, J. Raff, S. Dubchak, G. Steinhauser, C. Walther (Germany, Ukraine)

PD-3 IMPACTS OF DYNAMIC GEOCHEMICAL CONDITIONS ON PLUTONIUM AND AMERICIUM MOBILITY AT A LEGACY TRENCH DISPOSAL SITE
T.E. Payne, A.S. Kinsela, A. Ikeda-Ohno, X. Vazquez-Campos, T.D. Waite, J.J. Harrison, M.W. Bligh, M.P. Johansen, S. Thiruvoth, K.L. Wilsher (Australia, Germany)

PD-4 DIVERSE RADIONUCLIDES WERE FOUND INSIDE FILTERS OF BOTTLED MINERAL-WATER PLANTS
W. Shin, S. Choung, J.-H. Han, W.S. Han, B.-U. Chang (South Korea)

PD-5 DERIVATION OF DIFFUSION COEFFICIENTS CONSISTENT WITH SORPTION FROM CHANGE IN DEPTH DISTRIBUTION OF RADIOCAESIUM IN SOIL CONTAMINATED BY THE FUKUSHIMA NPP ACCIDENT AND FUTURE PREDICTION OF DEPTH DISTRIBUTION
H. Sato, M. Yoshii (Japan)

PD-6 THE IMPACT OF EARTH CURRENTS ON THE CORROSION OF DISPOSED REACTOR PRESSURE VESSELS IN SFR, SWEDEN
M. Sidborn, M. Löfgren (Sweden)

PD-7 PERMEABILITY OF FINE-GRAINED SEDIMENTARY ROCKS (SHALE, MUDSTONE) FROM CORE TO FAULT TO REGIONAL SCALE
I.C. Bourg (USA)

PD-8 CRITICAL NUCLEAR INFRASTRUCTURE VULNERABILITY
M. Ashraf Elsayed (Saudi Arabia)

TUESDAY (12. SEPTEMBER)

SESSION 6 C3: DEVELOPMENT AND APPLICATION OF MODELS

Chair: *L. Duro (Spain) and V. Brendler (Germany)*

9:15	RADIONUCLIDE RETENTION IN CRYSTALLINE ROCK: EVIDENCE, THEORY AND APPLICATIONS *V. Cvetkovic (INVITED) (Sweden)*	**C3-1**
10:00	EFFECTS OF HETEROGENEITY AT FRACTURE SURFACE FOR TRACER MIGRATION IN A FRACTURED CRYSTALLINE ROCK FROM THE GRIMSEL TEST SITE *Y. Tachi, T. Ito, Y. Akagi, H. Sato, A.J. Martin (Japan)*	**B2-3**
10:25	SULPHIDE FLUXES AND CANISTER CORROSION IN A DEPOSITION HOLE IN THE SPENT FUEL REPOSITORY AT OLKILUOTO, FINLAND: INSIGHTS FROM REACTIVE TRANSPORT MODELS USING AN EXPLICIT TREATMENT OF ELECTRICAL DOUBLE LAYERS *P. Alt-Epping, M. Pekala, P. Wersin, P. Pitkänen (Switzerland, Finland)*	**C3-3**
10:50	MODELING WASTE PACKAGE DEGRADATION AND WASTE FORM DISSOLUTION FOR GEOLOGIC REPOSITORY PERFORMANCE ASSESSMENT IN PFLOTRAN *J.M. Frederick, G.E. Hammond, P. Mariner, E. Stein, S.D. Sevougian (USA)*	**C3-4**
11:15	BREAK	

SESSION 7 A5: SOLID-WATER INTERFACE REACTIONS

Chair: *M. Marques (Switzerland) and T. Rabung (Germany)*

11:35	MODELING URANIUM(VI) ADSORPTION ONTO MONTMORILLONITE UNDER VARYING CARBONATE CONCENTRATIONS: A SURFACE COMPLEXATION MODEL ACCOUNTING FOR THE SPILLOVER EFFECT ON SURFACE POTENTIAL *C. Tournassat, R-M. Tinnacher, S. Grangeon, J.A. Davis (France, USA)*	**A5-1**
12:00	THE INFLUENCE OF ORGANIC MATTER ON THE SORPTION OF Zn ON ILLITE AND BOOM CLAY *L. Van Laer, N. Maes, M. Van Gompel, C. Bruggeman, S. Brassinnes (Belgium)*	**A5-2**
12:25	IDENTIFICATION OF URANIUM SORPTION SPECIES ON GRANITE IN THE ABSENCE AND PRESENCE OF PHOSPHATE *D. Pan, Q. Fan, W. Wu (China)*	**A5-3**
12:50	SORPTION OF RADIONUCLIDES ON THE HOST ROCKS OF THE FUTURE RUSSIAN HLW REPOSITORY: ROLE OF THE DIFFERENT MINERAL PHASES *V. Petrov, I. Vlasova, A. Rodionova, N. Kuzmenkova, V. Yapaskurt, V. Petrov, V. Poluektov, S. Kalmykov, J. Hammer (Russia)*	**A5-4**
13:15	LUNCH BREAK	

SESSION 8 A8: COMPUTATIONAL CHEMISTRY

Chair: *V. Vallet (France) and D.L Clark (USA)*

15:00	MICRO- AND MESOSCOPIC SIMULATIONS OF CLAY- AND CEMENT-BASED MATERIALS *B. Rotenberg (INVITED) (France)*	**A8-1**
		A8-2

15:45 QUANTUM CHEMCIAL MODELING OF An(VI/V) HYDROLYSIS COMPLEXES: CHARACTERIZATION OF SPECIES AND THEIR RELATIVE STABILITIES
I. Chiorescu, A. Gray, S. Krüger, N. Rösch (Germany)

16:10 A CONSISTENT MOLECULAR MODEL TO PREDICT THE BEHAVIOURS OF EARLY TETRAVALENT ACTINIDES IN AQUEOUS SOLUTION: FROM THORIUM TO PLUTONIUM **A8-3**
E. Acher, M. Masella, V. Vallet, F. Réal (France)

16:35 *BREAK*

SESSION 9 A4: REDOX REACTIONS AND RADIOLYSIS EFFECTS

Chair: S. Kalmykov (Russia) and C. Liu (China)

16:55 RECENT DEVELOPMENTS IN THE EVALUATION OF SPENT FUEL AS A WASTE FORM **A4-4**
L. Bauhn, N. Hannson, K. Spahiu (INVITED) (Sweden)

17:40 NEAR-FIELD IRON CORROSION EFFECT ON ^{238}Pu-DOPED SON68 BOROSILICATE GLASS ALTERATION IN CALLOVO-OXFORDIAN GROUNDWATER **A4-5**
T. De Echave, M. Tribet, S. Gin, C. Jégou (France)

18:05 RADIOCHEMISTRY VS. RADIATION CHEMISTRY: URANIUM AND TECHNETIUM SPECIATION UNDER RADIATION **A4-6**
J. Vandenborre, G. Blain, F. Haddad, M. Fattahi (France)

18:30 END OF ORAL TALKS OF TUESDAY

SESSION 10 POSTER SESSION II (19:00 – 22:00)

PA1 SOLUBILITY AND DISSOLUTION

PA1-1 EFFECT OF CLAYEY GROUNDWATER ON THE DISSOLUTION RATE OF THE SIMULATED NUCLEAR WASTE GLASS SON68 AT 70°C
T. De Echave, M. Tribet, P. Jollivet, C. Marques, S. Gin, C. Jégou (France)

PA1-2 STUDY OF ZIRCONIUM DIOXIDE DISSOLUTION AND ITS SURFACE REACTIVITY IN AQUEOUS SOLUTION
W. Zouari, T. Suzuki Muresan, J. Cambedouzou, A. Abdelouas, B. Grambow (France)

PA1-3 TEMPERATURE EFFECT ON THE SOLUBILITY OF TRIVALENT LANTHANIDES AND TETRAVALENT ACTINIDE
M. Grivé, M. López-García, E. Colàs, I. Campos, B. Madé (Spain, France)

PA1-4 THE THERMODYNAMICS OF URANIUM(IV) OXIDE IN AQUEOUS SOLUTIONS. MYTHS AND REALITIES
J. Bruno, K. Spahiu (Spain, Sweden)

PA1-5 SOLUBILITY OF U(VI) IN DILUTE TO CONCENTRATED KCl SOLUTIONS
N. Cevirim, E. Yalcintas, X. Gaona, M. Altmaier, H. Geckeis (Germany)

PA1-6 BEHAVIOUR OF ^{14}C RELEASED FROM SPENT ION EXCHANGE RESINS AND RESINS FIXED IN A CEMENT MATRIX
P. Večerník (Czech Republic)

PA1-7 SOLUBILITY OF THE RHABDOPHANE, $LnPO_4.0.667H_2O$ (Ln = La TO Dy): IMPLICATIONS FOR THE LONG-TERM STABILITY OF MONAZITE MATRICES
C. Gausse, S. Szenknect, A. Mesbah, N. Clavier, S. Neumeier, N. Dacheux (France, Germany)

PA1-8 SOLUBILITY AND HYDROLYSIS OF BERYLLIUM IN DILUTE TO CONCENTRATED NaCl, KCl AND $CaCl_2$ SYSTEMS
X. Gaona, N. Cevirim, M. Böttle, E. Yalcintas, M. Altmaier (Germany)

PA1-9 HYDROXO-CARBONATE COMPLEX FORMATION AND SOLUBILITY OF TETRAVALENT ACTINIDES AT ALKALINE pH CONDITIONS
J. Schepperle, E. Yalcintas, D. Fellhauer, N. Cevirim, X. Gaona, M. Altmaier, H. Geckeis (Germany)

PA1-10 Pu(VI) SOLUBILITY AND HYDROLYSIS IN ALKALINE NaCl SOLUTIONS
J. Schepperle, D. Fellhauer, X. Gaona, K. Dardenne, J. Rothe, D. Schild, M. Altmaier, H. Geckeis (Germany)

PA1-11 DISSOLUTION OF THORIUM DIOXIDE BASED SOLID SOLUTIONS: EFFECT OF CHEMICAL, STRUCTURAL AND MICROSTRUCTURAL PARAMETERS
N. Dacheux, F. Tocino, L. Claparède, D. Horlait, S. Szenknect, J. Ravaux,, R. Podor, P. Moisy (France)

PA1-12 DISSOLUTION STUDIES OF UO_2 UNDER REDUCING CONDITIONS AND THE INFLUENCE OF pH AND CARBONATE CONCENTRATION
N. Rodríguez-Villagra, J. Cobos, J. Nieto, L. Serrano, S. Durán, J.M. Cobo (Spain)

PA1-13 SOLUBILITY OF Th(IV) AND U(VI) IN THE PRESENCE OF SELECTED ORGANIC CEMENT ADDITIVES AND MODEL COMPOUNDS: SCREENING EXPERIMENTS IN ALKALINE NaCl, $MgCl_2$ AND $CaCl_2$ SOLUTIONS
N. Adam, X. Gaona, M. Altmaier, H. Geckeis (Germany)

PA1-14 MODERN SPENT FUEL DISSOLUTION IN FAILED CONTAINER CONDITIONS (DISCO)
L.Z. Evins, I. Farnan, D. Hambley, E. Gonzalez Robles, O. Roth, D. Bosbach, L. Duro, E. Curti, A. Valls (Sweden, UK, Germany, Spain, Switzerland)

PA3 COMPLEXATION WITH INORGANIC AND ORGANIC LIGANDS

PA3-1 URANIUM (VI) COMPLEX FORMATIN BY GLYPHOSATE IN AQUEOUS SOLUTION
Q. Li, Q. Yu, W. Wu, B. Liu, X. Li, S. Luo (China)

PA3-2 EFFECT OF CEMENT ADMIXTURES AND THEIR DEGRADATION PRODUCTS ON RADIONUCLIDE SOLUBILITY
D. García, M. Grivé, L. Duro, S. Brassinnes, J. de Pablo (Spain, Belgium)

PA3-3 COORDINATION POLYMERS OF TETRAVALENT URANIUM AND NEPTUNIUM WITH AROMATIC POLYCARBOXYLATE LIGANDS
N.P. Martin J. März, C. Volkringer, N. Henry, C. Hennig, A. Ikeda-Ohno, T. Loiseau (France, Germany)

PA3-4 SORPTION BEHAVIOR OF U(VI) ON DOPED POLYANILINE: EFFECTS OF CARBONATE AND ITS COMPLEXES
J. Liu, J. Yang, J. Liao, Y. Yang, N. Liu (China)

PA3-5 COMPLEXATION OF TRIVALENT LANTHANIDES AND ACTINIDES WITH AQUEOUS PHOSPHATES AT ELEVATED TEMPERATURES (25-80°C)
N. Huittinen, N. Jordan, H. Lösch (Germany)

PA3-7 STUDY ON PROTONATED N-METHYL-SUBSTITUTED DIAMINE TEMPLATING URANYL OXALATES: SYNTHESIS, STRUCTURE AND PROPERTIES
Z. Lin, X. Qiao, C.L. Liu (China)

PA3-8 COMPLEXATION OF EUROPIUM(III) WITH TEE-BISDGA IN AQUEOUS SOLUTION
Z.P. Wang, S.D. Ding, X.Y. Hu, L.R. Zhang, Y. Liu, L.J. Song, Z.L. Chen (China)

PA3-9 INVESTIGATION OF TRIBUTYL PHOSPHATE-COATED HYDROXYAPATITE FOR URANIUM REMOVAL
W.-S. Kim, H.J. Kim, W. Um (South Korea)

PA3-10 URANIUM AND PLUTONIUM IN NATURAL SEAWATER: SPECIATION AND ACCUMULATION MECHANISM IN P. Lividus SEA URCHIN
M.R. Beccia, M. Maloubier, B. Reeves, M. Matara-Aho, H. Michel, P.L. Solari, L. Mangialajo, M. Monfort, C. Moulin, C. Den Auwer (France, Finland)

PA3-11 THE NOVEL EXTRACTANTS, BIS-TRIAMIDES: SYNTHESIS AND SELECTIVE EXTRACTION OF THORIUM(IV) FROM NITRIC ACID MEDIA
L. Li, N. Pan, X. Guo, J. Ding, R. Wu, S. Ding, R. Wang, Y. Jin, C. Huang, C. Xia (China)

PA3-12 DETERMINATION OF THE COMPLEXATION ENTHALPY OF HUMIC ACID BY CALORIMETRIC TITRATION
S. Kimuro, A. Kirishima, D. Akiyama, N. Sato (Japan)

PA3-13 LOADING EFFECT ON Eu(III) BINDING ABILITY OF HUMIC ACID ISOLATED FROM DEEP SEDIMENTARY GROUNDWATER
M. Terashima, T, Saito, M. Ito, Y. Akagi, Y. Tachi (Japan)

PA3-14 SPECTROSCOPIC STUDIES ON AQEUOUS PLUTONIUM AT ELEVATED TEMPERATURES
H.-R. Cho, H. Kim, E. C. Jung, W. Cha (South Korea)

PA3-15 INFLUENCE OF POLYDISPERSITY AND POLYFUNCTIONALITY OF BOOM CLAY DISSOLVED ORGANIC MATTER ON INTERACTION WITH U(VI)
Y. Buchatskaya, D. Durce, S. Salah, M. Devillers (Belgium)

PA3-16 CHARACTERIZATION OF TETRAVALENT ACTINIDE COMPLEXES WITH IMINE TYPE LIGANDS (SALEN AND ITS DERIVATIVE)
T. Radoske, J. März, P. Kaden, O. Walter, T. Stumpf, A. Ikeda-Ohno (Germany, EU)

PA3-17 URANIUM (VI) COMPLEXATION WITH AQUEOUS SILICATES UNDER ELEVATED TEMPERATURES
H. Lösch, N. Huittinen, T. Stumpf (Germany)

PA3-18 A MULTI-METHOD INVESTIGATION OF An(III)/Ln(III)-MALATE COMPLEXES
F. Taube, M. Acker, B. Drobot, A. Rossberg, H. Foerstendorf, M. Patzschke, S. Taut, T. Stumpf (Germany)

PA3-19 RECOVERY OF URANIUM FROM AQUEOUS SOLUTION USING THE ISOMERS OF NITROSO-NAPHTHOL
S. Liu, Y. Yang, W. Wu (China)

PA3-20 THE EFFECT OF A SYNTHESISED SUPERPLASTICISER ON THE MOBILITY OF RADIONUCLIDES THROUGH A CEMENTITIOUS GROUT
M. Isaacs, S. Christie, S. Edmondson, M. Hayes, D. Read (UK)

PA3-21 IMPACT OF ORGANIC CEMENT ADDITIVES ON THE MOBILITY OF RADIONUCLIDES IN A RADIOACTIVE WASTE REPOSITORY
A. Chernyshev, K. Forsberg, M. Jonsson (Sweden)

PA3-23 SPECIATION OF U(IV) SULFATE IN AQUEOUS SOLUTION - SPECTROSCOPIC CHARACTERIZATION AND THERMODYNAMIC MODEL
S. Lehmann, R. Steudtner, T. Zimmermann, V. Brendler (Germany)

PA3-24 IMPACT OF EDTA ON THE SOLUBILITY AND REDOX BEHAVIOUR OF URANIUM IN DILUTE TO CONCENTRATED NaCl SOLUTIONS
E. Yalcintas, D. T. Reed, X. Gaona, M. Altmaier (Germany, USA)

PA3-25 SPECIATION OF METAL IONS IN HIGHLY ALKALINE SOLUTIONS OF CONCENTRATED ELECTROLYTES
S.B. Clark, C.I. Pearce, J. Hu , A. Felmy , E. Martinez-Baes, A.E. Clark (USA)

PA4 REDOX REACTIONS AND RADIOLYSIS EFFECTS

PA4-1 RETENTION OF CHROMIUM IN METAKAOLIN-BASED GEOPOLYMERIC MATERIALS UNDER OXIDATION AND CARBONATION
O. Klein-BenDavid, J. Branch, P. Zhang, G. Bar-Nes, M. Arbel-Haddad, R. Delapp, D. Kosson (Israel, USA)

PA4-2 SELECTIVE SOLID-PHASE EXTRACTION OF URANIUM BY PORE-FREE MATRIX WITH COOPERATIVE CHELATING OF HYPERBRANCHED LIGANDS
Y. Li, B. Li, L. Wang, M.C. Zhang, R. Wen, X.H Guo, X. Li, X.F. Li, S.J. Li, L.J. Ma (China)

PA4-3 EVALUATION OF SORPTION BEHAVIOR OF SELENIDE ONTO MONTMORILLONITE
Y. Sugiura, T. Tomura, R. Doi, T. Ishidera, Y. Tachi (Japan)

PA4-4 THE INFLUENCE OF IRON ON SELENITE REMOVAL USING BENTONITE AND SPECTROSCOPY STUDIES ON MECHANISMS
J.G. He, X.L. Qiao, Y.L. Shi, Y. Li, X.Y. Yang, W.Q. Zhou, C.L. Liu (China)

PA4-5 THE STANDARD REDOX POTENTIAL OF THE (Se_4^{2-}/HSe^-) SYSTEM DETERMINED BY CYCLIC VOLTAMMETRY
R. Doi, T. Yaita (Japan)

PA4-6 THE REDOX BEHAVIOR AND SPECIES OF RHENIUM (VII) IN PRESENT OF POLYAMINOPOLYCARBOXYLATE
Z. Fu, B. Chen, A. He, X. Lv, X. Wei, C. Xia, C. Huang, Y. Jin (China)

PA4-7 THE ROLE OF THE RADIATION CHEMICAL BEHAVIOUR OF THE CARBONATE MATRIX IN THE NUCLEAR LONG-LIVED WASTE STORAGE
A. Costagliola, J. Vandenborre, G. Blain, V. Baty, F. Haddad, M. Fattahi (France)

PA4-8 UNRAVELING THE MECHANISMS OF NEPTUNIUM REDOX REACTIONS IN NITRIC ACID SOLUTIONS
S. Chatterjee, T. G. Levitskaia, S.A. Bryan, A.J. Casella, J. M. Peterson (USA)

PA4-9 COMPLEXATION OF Eu(III) BY HYDROSOLUBLE DEGRADATION PRODUCTS OF γ-IRRADIATED POLYURETHANE
E. Fromentin, P. Reiller, M. Ferry, S. Legand, D. Lebeau, F. Cochin, M. V. di Giandomenico, D. Doizi, S. Esnouf, C. Aymes-Chodur (France)

PA4-10 UPTAKE OF LONG-LIVED SAFETY RELEVANT RADIONUCLIDES BY CEMENTITIOUS MATERIALS AND HARDENED CEMENT PASTES
S. Lange, M. Isaacs, M. Klinkenberg, G. Deissmann, D. Read, D. Bosbach (Germany)

PA4-12 REDOX CHEMISTRY, SOLUBILITY AND HYDROLYSIS OF URANIUM IN REDUCING, DILUTE TO CONCENTRATED NaCl, $MgCl_2$ AND $CaCl_2$ SYSTEMS
N. Cevirim, E. Yalçıntaş, X. Gaona, K. Dardenne, M. Altmaier, H. Geckeis (Germany)

PA4-13 PERTECHNETATE IMMOBILIZATION FROM AQUEOUS MEDIA BY BIMETALLIC POROUS IRON COMPOSITES (PICs)
D. Li, S.E. Murph, K. Coopersmith, D.I. Kaplan, K. Taylor-Pashow, J.C. Seaman, H. Chang, M. Tandukar (USA)

PA4-14 REDOX BEHAVIOUR OF Tc(IV) IN ALKALINE, DILUTE TO CONCENTRATED $NaNO_3$-NaCl SYSTEMS
A. Baumann, E. Yalçıntaş, X. Gaona, K. Dardenne, M. Altmaier, H. Geckeis (Germany)

PA4-15 THE OXIDATION STATES OF URANIUM ON THE SURFACE OF UO_2 SINGLE CRYSTAL
K.I. Maslakov, Yu.A. Teterin, A.J. Popel, A.Yu. Teterin, K.E. Ivanov, V.G. Petrov, S.N. Kalmykov, R. Springell, T.B. Scott, I. Farnan (Russia, UK)

PA4-16 KINETIC STUDY ON URANIUM(VI) REDUCTION BY FLAVINS AND ANTHRAQUINONES- ELECTROCEHMICAL APPROACH FOR UNDERSTANDING THE EXTRACELLER REDUCTION
S. Yamasaki, N. Kozai, K. Tanaka, T. Ohnuki (Japan)

PA4-17 REACTION OF CORRODED STEEL COUPONS WITH URANIUM
J. Weatherill, D. Engelberg, S. Shaw, A. Jannsen, P. Quinn, G. Burke, K. Morris (UK)

PA4-18 SORPTION OF U-238 CHAIN RADIONUCLIDES ONTO SOILS
A. Valls, G. André, J. García-Orellana, L. Duro (Spain, France)

PA4-19 IMMOBILZATION OF SELENIUM, URANIUM AND NEPTUNIUM UNDER SIMULATED REPOSITORY CONDITIONS
D. Cui, H. Yang, T. Liu (China, Sweden)

PA4-20 THE EUROPEAN NETWORK ON NUCLEAR AND RADIOCHEMISTRY EDUCATION AND TRAINING
C. Walther (Germany)

PA6 COLLOID FORMATION

PA6-1 EFFECT OF EXPERIMENTAL CONDITIONS ON THE COLLOID FORMATION OF AQUEOUS THORIUM SOLUTION
D. Rama Mohana Rao, B.K. Nagar, M. Sahu, N. Rawat, S. Jeyakumar, M. K. Saxena, B.S. Tomar (India)

PA6-2 CERIUM DIOXIDE NANOPARTICLES BEHAVIOUR IN AQUEOUS SOLUTIONS
T.V. Plakhova, A.Yu. Romanchuk, A.D. Konyukhova, V.K. Ivanov, S.N. Kalmykov (Russia)

PB2 DIFFUSION AND OTHER MIGRATION PROCESSES

PB2-1 HOW MOBILE ARE TRITIATED WATER AND ^{36}Cl THROUGH PARTIALLY-SATURATED CEMENT-BASED MATERIALS? NEW INSIGHTS GIVEN BY THREE INNOVATIVE AND COMPLEMENTARY TECHNIQUES
S. Savoye, N. Macé, S. Lefèvre, A. Rajyaguru, G. Spir, J.C. Robinet (France)

PB2-2 INVESTIGATING LONG-RANGE MATRIX DIFFUSION BY AN IN-SITU THROUGH-ELECTROMIGRATION TECHNIQUE - IS IT FEASIBLE?
M. Löfgren, M. Sidborn (Sweden)

PB2-3 DIFFUSION EXPERIMENTS ON BENTONITE/CEMENT INTERFACE: DEVELOPMENT OF METHODOLOGY AND EVALUATION
T. Rosendorf, E. Hofmanová, D. Vopálka, A. Vetešník, R. Červinka, P. Večerník (Czech Republik)

PB2-4 DIFFUSION AND SORPTION OF $^{75}Se(IV)$ ON GRANITES: EFFECT OF MINERAL COMPONENTS
X.Y. Yang, X.K. Ge, C. L. Wang, W. Q. Zhou, C. L. Liu (China)

PB2-5 COMPARATIVE STUDY OF ANIONIC AND CATIONIC DIFFUSION IN CEMENT PASTE USING MIGRATION AND LIXIVIATION TESTS
T. Sanchez, P. Henocq, A. Aït Mokhtar, A. Hamami (France)

PB2-6 A SIMPLE METHOD OF EVALUATION OF THROUGH-DIFFUSION EXPERIMENTS
D. Vopálka, A. Vetešník (Czech Republic)

PB2-7 RADIONUCLIDES TRANSPORT IN FRACTURED ROCK AT LILW REPOSITORY IN SOUTH KOREA
W. Um, W.-S. Kim, S. Han, J. Ahn, J.-H. Lee, J. Ha (South Korea)

PB2-8 DIFFUSION OF SELENITE IN SMECTITE MIXED WITH γ-ALUMINA NANOPARTICLES: TOWARDS AN IMPROVED BARRIER FOR ANION RETENTION
U. Alonso, M. Garcia-Gutierrez, T. Missana, M. Mingarro, N. Mayordomo, A. Patelli, V. Rigato (Spain, Italy)

PB2-9 RADIONUCLIDE DIFFUSION THROUGH CEMENT-BASED MATERIALS
P. Večerník, L. Brázda, E. Hofmanová, T. Rosendorf (Czech Republic)

PB2-10 DIFFUSIVE PROPERTIES OF A CHINESE BENTONITE: UNEXPECTED BEHAVIOUR OF THE $^{22}Na^{+}$ TRACER
M.A. Glaus, P. Bunic, L.R. Van Loon, Y. Zhao (Switzerland, China)

PB2-11 MIGRATION OF ^{129}I IN THE BIOSPHERE - CHEMICAL SPECIATION AND INTERACTION WITH SOIL-
F. Köhler, C. König, A. Hölzer, B. Riebe, M. Gorny, C. Walther (Germany)

PB2-12 CESIUM DIFUSION IN MORTARS FROM DIFFERENT CEMENTS USED IN RADIOACTIVE WASTE REPOSITORIES
M. García-Gutiérrez, T. Missana, M. Mingarro, J. Morejón, J.L. Cormenzana (Spain)

PB2-13 COMPARISON OF DIFFUSION COEFFICIENTS MEASURED IN DIFFERENT COMPACTED BENTONITE FOR TcO_4^- AND HTO
L.C. Chen, T.L. Tsai, Y.H. Shih, T.Y. Su, C.P. Lee, S.C. Tsai (Taiwan)

PB2-14 DETERMINATION OF Cs DIFFUSION INTO GRANITE MATRIX USING RUTHERFORD BACKSCATTERING SPECTROMETRY
S.C. Tsai, C.P. Lee, T.L. Tsai (Taiwan)

PB2-15 A NUMERICAL ANALYSIS FOR THROUGH-DIFFUSION OF HTO AND Cs IN COMPACTED BENTONITE WITH DIFFERENT COLUMN LENGTHS
C.P. Lee, P.T. Wang, S.C. Tsai, M.C. Wu, K.C. Hsu, T.L. Tsai (Taiwan)

PB4 EFFECTS OF BIOLOGICAL AND ORGANIC MATERIALS

PB4-1 THE INFLUENCE OF HUMIC AND FULVIC ACIDS ON URANIUM BIOMINERALIZATION BY *BACILLUS*
H. Tu, T. Lan, C. Zhao, J. Wang, H. He, G. Yuan, J. Liu, J. Liao, Y. Yang, J. Yang, N. Liu (China)

PB4-2 CHEMICAL STABILITY OF ^{14}C-CONTAINING LOW MOLECULAR WEIGHT ORGANIC COMPOUNDS IN THE CEMENTITIOUS NEAR-FIELD OF A RADIOACTIVE WASTE REPOSITORY
J. Tits, D. Kunz, E. Wieland (Switzerland)

PB4-3 MICROBIAL REDUCTION OF URANIUM (VI) BY A FUNGAL STRAIN *GEOTRICHUM* SP. DWC-1 ISOLATED FROM A POTENTIAL DISPOSAL SITE
X. Li, Z. Huang, L. Du, S. Li, L. Du, X. Wang, J. Liao, N. Liu (China)

PB4-4 THE CHARACTERISTICS OF THE DISTRIBUTION AND OCCURRENCE OF URANIUM DURING THE BIOMINERALIZATION OF URANIUM PHOSPHATE INDUCED BY THE CELL OF *LANDOLTIA PUNCTATA*
X. Nie, F. Dong, M. Liu, C. Ding, R. Huang, Z. Li (China)

PB4-5 TOWARD A THERMODYNAMIC MODEL FOR THE DEGRADATION OF KEROGEN IN BOOM CLAY
S. Salah, D. Durce, L. Richard (Belgium)

PB4-6 CONTAMINATION OF FORESTS BY THE FUKUSHIMA DAIICHI NUCLEAR POWER PLANT ACCIDENT AND CHEMICAL SPECIES OF RADIOCESIUM IN TREES
K. Tanaka, S. Yamasaki, Y. Takahashi (Japan)

PB4-7 THE INFLUENCE OF POROUS MEDIUM ON CITRATE FACILITATED DISSOLUTION OF URANYL-PHOSPHATE: CONNECTING BATCH FLOW REACTORS WITH MICROMODELS
B. Ferguson, L. Murdoch, T.A. DeVol, A. Seliman, F. Liu, R. Podila, A. Rao, A.H. Al-Shakarji, P.Z. El-Khoury, T. Wietsma, M. Oostrum, B.A. Powell (USA)

PB4-8 CO-TREATMENT OF Sr AND Tc IN RADIOACTIVELY CONTAMINATED LAND WITH GLYCEROL PHOSPHATE
A. Cleary, L. Newsome, J. Lloyd, S. Shaw, G. Boshoff, D. Trivedi, N. Atherton, K. Morris (UK)

PB4-9 MICROBIAL ABBUNDANCE IN A DEEP GEOLOGICAL REPOSITORY DISPOSAL SYSTEM: MICROBIOLOGICAL RESEARCH WITHIN A MACOTE EXPERIMENT
M. Černík, J. Steinová, D. Dobrev, V. Havlová (Czech Republic)

PB6 NATURAL ANALOGUES

PB6-1 COMPARISON OF $^{226}Ra/^{238}U$ AND $^{228}Th/^{228}Ra$ DISEQUILIBRIUM WITH WEATHERING INDICES IN BEACH SAND SEDIMENTS ASSOCIATED WITH GRANITOIDS FROM CYCLADES, GREECE
A. Papadopoulos, A. Koroneos, G. Christofides, S. Stoulos (Greece)

PB6-2 FORMATION AND ALTERATION OF URANIUM MINERALS IN THE FORSMARK BEDROCK DURING FLUID-ROCK INTERACTION
L.M. Krall, L.Z. Evins, E. Kooijman, M.J. Whitehouse, E.-L. Tullborg, (Sweden)

PB6-3 ANALYZING SPATIAL AND TEMPORAL VARIABILITY IN $^{226}Ra/^{228}Ra$ AND $^{224}Ra/^{228}Ra$ ISOTOPIC RATIO IN SUBSURFACE ENVIRONMENT AS A RESULT OF ALPHA RECOIL
N. Mehta, C. Harvey, B.D.Kocar (USA)

PC1 DATA SELECTION AND EVALUATION

PC1-1 SELECTION OF HIGH QUALITY THERMODYNAMIC DATA FOR MODELLING OF DEEP GEOLOGICAL REPOSITORIES: PRESENT AND FUTURE OF THE NEA THERMOCHEMICAL DATABASE PROJECT
M.-E. Ragoussi, D. Costa (France)

PC1-2 THERMODYNAMIC PROPERTIES FOR $CaMoO_4$(cr), MoO_3(cr) and MoO_4^{2-}(aq)
M. Morishita, Y. Kinoshita, H. Houshiyama, A. Nozaki, H. Yamamoto (Japan)

PC1-3 THERMODYNAMIC MODELING IN THE Na-NO_3-SO_4-Cl-OH-H_2O CHEMICAL SYSTEM AT 25 °C
A. Lach, L. André, P. Henocq, A. Lassin (France)

PC1-4 APPLICATION OF SPECIFIC ION INTERACTION THEORY (SIT) TO CONCENTRATED SULPHATE SYSTEMS
E. Colàs, I. Campos, Benoît Madé, M. Grivé (Spain, France)

PC1-5 LANTHANIDES AND ALKALINE/EARTH ALKALINE METALS NITRATES SYSTEMS: MODELLING OF THEIR AQUEOUS PROPERTIES AND SOLUBILITY AT 25°C
S. Guignot, A. Lassin, C. Christov, L. André, A. Lach, P. Henocq (France, Bulgaria)

PC1-6 THE OECD/NEA UPDATE BOOK ON THE CHEMICAL THERMODYNAMICS OF U, Np, Pu, Am AND Tc
I. Grenthe, X. Gaona, A. Plyasunov, L. Rao, W. Runde, B. Grambow, R. Konings, A.L. Smith, E. Moore, K. Spahiu, D. Costa, M.-E. Ragoussi (Sweden, Germany, Russia, USA, France, EU, Netherlands)

PC1-7 USE OF INTERACTIVE CHORD DIAGRAMS TO REPRESENT THERMODYNAMIC DATABASES AS A TOOL FOR UNDERSTANDING CHEMICAL RELATIONSHIPS
A. Nardi, L.M. De Vries (Spain)

PC1-8 THERMAC - A GERMAN COLLABORATIVE PROJECT ON AQUATIC CHEMISTRY AND THERMODYNAMICS AT ELEVATED TEMPERATURES
M. Altmaier, F. Brandt, V. Brendler, I. Chiorescu, E. Colàs, F. Endrizzi, X. Gaona, A. Gray, M. Grivé, S. Hagemann, N. Huittinen, C. Koke, D.A. Kulik, S. Krüger, J.-Y. Lee, M. Maiwald, G.D. Miron, P.J. Panak, J. Poonoosamy, A. Skerencak-Frech, R. Steudtner, T. Thoenen (Germany, Spain, Switzerland)

PC1-9 STATE-OF-THE-ART REPORT WITHIN THE NEA-TDB TO ASSESS MODELING AND EXPERIMENTAL APPROACHES IN AQUEOUS HIGH IONIC-STRENGTH SOLUTIONS
M. Altmaier, D. Costa, A. Felmy, H.C. Moog, R. Pabalan, M. Ragoussi, D.T. Reed, W. Runde, P. Thakur, W. Voigt (Germany, France, USA)

PC1-10 CEBAMA - AN EC HORIZON2020 PROJECT ON CEMENT-BASED-MATERIALS
M. Altmaier, V. Montoya, L. Duro, A. Valls, E. Holt, F. Claret, U. Mäder, B. Grambow, A. Idiart (Germany, Spain, Finland, France, Switzerland)

PC1-11 GEOCHEMICAL ENVIRONMENTS FOR THERMOCHIMIE DATABASE APPLICATION
M. Grivé, A. Shelton, L. Duro, B. Madé (Spain, UK, France)

PC1-12 APPLICATION OF EXPERIMENTAL DATA AND CONCEPTUAL MODELS OF LONG-TERM DISSOLUTION OF SPENT FUEL ON PERMORMANCE ASSESSMENTS
O. Riba, A. Valls, L. Duro (Spain)

PC3 DEVELOPMENT AND APPLICATION OF MODELS

PC3-1 INVERSE MODELLING OF EXPERIMENTAL RESULTS FROM THE IN-SITU TRACER TEST LTDE-SD USING SPATIALLY VARIABLE TRANSPORT PARAMETERS
J. Říha, M. Hokr (Czech Republic)

PC3-2 3D REACTIVE TRANSPORT MODEL OF SULPHIDE FLUXES IN THE NEAR-FIELD OF A SPENT FUEL REPOSITORY AND THE ASSESSMENT OF COPPER CANISTER CORROSION DUE TO SULPHIDE
M. Pękala, P. Alt-Epping, P. Wersin, P. Pitkänen (Switzerland, Finland)

PC3-3 RADON AND THE PFLOTRAN INGESTION DOSE MODEL OF GDSA FRAMEWORK
P.E. Mariner, J.M. Frederick, G.E. Hammond (USA)

PC3-4 ISOTOPE PARTITIONING, DECAY, AND INGROWTH ACROSS MULTIPLE PHASES IN PFLOTRAN CODE OF GDSA FRAMEWORK
P.E. Mariner, G.E. Hammond, J.M. Frederick (USA)

PC3-5 PFLOTRAN REACTION SANDBOX: A FLEXIBLE, EXTENSIBLE FRAMEWORK FOR VETTING BIOGEOCHEMICAL REACTIONS WITHIN AN OPEN SOURCE SUBSURFACE SIMULATOR
G.E. Hammond (USA)

PC3-6 ESTIMATING THE EFFECT OF FRACTURE CONNECTIVITY ON WASTE ISOLATION USING A HIGH-PERFORMANCE REACTIVE TRANSPORT SIMULATOR, PFLOTRAN
S.D. Sevougian, E.R. Stein, G.E. Hammond, P.E. Mariner, J.M. Frederick (USA)

PC3-7 THE CALCULATION SIMULATION OF THE SPECIATION DISTRIBUTION OF URANIUM IN BEISHAN GROUNDWATER AND THE SORPTION OF URANIUM ON TWO DIFFERENT MATERIALS
W.Q. Zhou, J.C. Jiang, X.Y. Yang, X.Y Wang, C.L Liu (China)

PC3-8 UPSCALING RADIONUCLIDE TRANSPORT IN FRACTURED ROCKS
P. Trinchero, V. Cvetkovic, J.-O. Selroos, B. Gylling, J. Molinero, G. Deissmann, D. Bosbach (Spain, Sweden, Germany)

PC3-9 MODELING SOLUTE TRANSPORT OF STRONTIUM IN SODIUM NITRATE SOLUTION USING GERA CODE
K.A. Boldyrev, I.V. Kapyrin, E.V. Zakharova (Russia)

PC3-10 MULTI-SCALE MODELING IN PFLOTRAN FOR GEOLOGIC REPOSITORY PERFORMANCE ASSESSMENT: AN ENHANCEMENT TO GDSA FRAMEWORK
E.R. Stein, G.E. Hammond, C.F. Jové Colón (USA)

PC3-11 MODELLING GROUNDWATER FLOW AND RADIONUCLIDE TRANSPORT IN A TRENCH-TYPE NEAR SURFACE DISPOSAL FACILITY FOR LILW
J.-W. Kim, D.-K. Cho, J.-H. Bang (South Korea)

PC3-12 NUMERICAL MODELLING OF RADIUM MOBILITY IN A SHALLOW REPOSITORY
F. Grandia, E. Colàs, A. Sáinz-García, J. Olmeda, J-C. Robinet, P. Henocq, I. Munier, M. Grivé (Spain, France)

PC3-13 USE OF MONTE CARLO SIMULATION (MCS) TO PROPERLY EVALUATE DIFFUSION TRANSPORT OF HIGHLY REACTIVE RADIONUCLIDES IN UNSATURATED SOILS WITH HALF-CELL IN-DIFFUSION METHOD
O. Ramírez-Guinart, J. Fons-Castells, M. Vidal, A. Rigol (Spain)

PC3-14 DONNAN EQUILIBRIA IN CLAYS SIMULATED BY USING THE NERNST-PLANCK EQUATION
T. Gimmi, P. Alt-Epping (Switzerland)

PC3-15 ESTIMATION OF RADIONUCLIDE SOURCE TERMS FOR GENERIC NUCLEAR WASTE REPOSITORIES WITHIN THE ENTRIA PROJECT
D. Fellhauer, V. Montoya, J. Schepperle, X. Gaona, V. Metz, M. Altmaier, H. Geckeis (Germany)

PC3-16 IMPACT OF TRANSPORT PATHWAYS IN RADIUM ACCUMULATION UNDER GROUNDWATER DISCHARGE AREAS
E. Abarca, A. Sainz-Garcia, D. Sampietro, D. Garcia, J. Molinero, P. Saetre, U. Kautsky (Spain, Sweden)

PC3-17 REACTIVE TRANSPORT MODEL OF URANIUM MOBILITY IN THE RIPARIAN ZONE
E. Abarca, G. Roman-Ross, D. Sampietro, F. Lidman, J. Molinero, U. Kautsky (Spain, Sweden)

PC3-18 COMPARTIMENTAL AND DETERMINISTIC MODEL FOR REFINED ENVIRONMENTAL TRITIUM DOSIMETRIC ASSESSMENTS
M. López Rodriguez, L. Sedano (Spain)

PC3-19 DEVELOPMENT OF A 3D GROUNDWATER FLOW AND RADIONUCLIDE TRANSPORT MODEL AT THE EUREX NUCLEAR PLANT IN SALUGGIA (NORTHERN ITALY
J. De Sanctis, G. Mingrone (Italy)

PC5 SAFETY ASSESSMENT AND REPOSITORY CONCEPTS

PC5-1 DEVELOPMENT OF REGULATORY DOCUMENTATION IN FIELD OF RADIOACTIVE WASTE MANAGEMENT IN REPUBLIC OF UZBEKISTAN IN COOPERATION WITH NORWEGIAN RADIATION PROTECTION AUTHORITY
B. Kuldjanov, M. Karpov-Sneve, T. Zhunussova, K. Ziegien-Iwaniuk U. Salikhbaev, H. Halilov, D. Zaredinov, T.R. Radyuk (Uzbekistan, Norway, Austria)

PC5-2 WIPP TRU REPOSITORY: UPDATE OF THE SAFETY CASE
D.T. Reed, M.K. Richmann, J.S. Swanson, T.M. Dittrich (USA)

PC5-3 THE USE OF POLYCARBOXYLATE ETHER SUPERPLASTICISERS FOR THE PACKAGING OF LOW HEAT GENERATING RADIOACTIVE WASTES: IMPLICATIONS FOR GDF POST-CLOSURE SAFETY
A.J. Shelton, R. Beard, M. Beard, S. J. Williams (UK)

WEDNESDAY (13. SEPTEMBER)

SESSION 11 E: CEMENTITIOUS SYSTEMS / RADIONUCLIDE BEHAVIOUR IN HYPERALKALINE SOLUTIONS

Chair: *L. van Loon (Switzerland) and C. Tournassat (France)*

9:15 CHEMISTRY OF CEMENTS **E-1**
B. Lothenbach (INVITED) (Switzerland)

10:00 IMPACT OF ORGANIC LIGANDS ON THE SOLUBILITY OF ACTINIDES UNDER REPOSITORY-RELEVANT pH / Eh CONDITIONS **E-2**
X. Gaona, M. Altmaier, H. Geckeis (Germany)

10:25 NICKEL(II) SOLUBILITY, HYDROLYSIS AND COMPLEX FORMATION WITH ISA UNDER ALKALINE TO HYPERALKALINE CONDITIONS **E-3**
M.R. González-Siso, X. Gaona, L. Duro, M. Altmaier, J. Bruno (Spain, Germany)

10:50 MOLYBDATE SORPTION IN CEMENTITIOUS MATERIALS AND IN-SITU MEASUREMENT OF REDOX POTENTIAL IN REINFORCED CONCRETE **E-4**
B. Ma, A. Fernandez-Martinez, C. Tournassat, S. Grangeon, F. Claret, B. Madé, L. Charlet (France)

11:15 BREAK

SESSION 12 A7: EXPERIMENTAL METHODS

Chair: *G. Law (UK) and X. Wang (China)*

11:35 QUASI - NON-DESTRUCTIVE INVESTIGATION OF ACTINIDE PARTICLES - RECENT APPLICATIONS OF THE SECONDAY NEUTRAL IONISATION SIMS – **A7-1**
C. Walther, H. Bosco, L. Hamann, M. Weiss, M. Franzmann, K. Wendt (Germany)

12:00 USE OF QUANTITATIVE DIGITAL AUTORADIOGRAPHY TECHNIQUE TO INVESTIGATE THE CHLORINE-36-LABELLED RADIOTRACER TRANSPORT IN CONCRETE: EXPERIMENTAL VS. MODELLING APPROACHES **A7-2**

N. Macé, S. Savoye, P. Fichet, C. Lim, S. Lefèvre, J. Page (France)

12:25 HIGH ENERGY RESOLUTION X-RAY SPECTROSCOPY STUDIES OF ELECTRON-ELECTRON INTERACTIONS IN ACTINIDE AND LANTHANIDE SYSTEMS **A7-3**

K.O. Kvashnina, A. Rossberg, J. Exner, A.C. Scheinost (Germany)

12:50 A NOVEL ANALYTICAL METHOD FOR THE ULTRA-TRACE DETERMINATION OF ACTINIDES AND 99TC IN NATURAL WATER SAMPLES WITH ACCELERATOR MASS SPECTROMETRY **A7-4**

F. Quinto, T. Faestermann, J. M. Gómez Guzmán, K. Hain, G. Korschinek, P. Ludwig, M. Plaschke, T. Schäfer, P. Steier, H. Geckeis (Germany, Austria)

13:15 **FREE AFTERNOON**

THURSDAY (14. SEPTEMBER)

SESSION 13 D: CASE STUDIES

Chair: *S. Clark (USA) and Jorge Molinero (Spain)*

9.00	IMPLEMENTING GEOCHEMISTRY IN THE MANAGEMENT OF MINING WASTES *D. Arcos (INVITED) (Spain)*	**D-1**
9:45	FATE AND TRANSPORT OF RADIOCESIUM IN RIVER SYSTEMS OF FUKUSHIMA *K. Iijima, A. Kitamura, K. Miyahara (INVITED) (Japan)*	**D-2**
10:30	REMEDIATION OF NUKEM'S FUEL PRODUCTION SITE -BASE FOR DEVELOPING A PHASED APPROACH TO CHARACTERISE AND REMEDIATE RADIOACTIVELY CONTAMINATED SITES *H.G. Jung, J. Heiduk, F. Langer, F. Scheuermann (Germany)*	**D-3**
10:55	REMEDIATION OF A URANIUM ACIDIC IN SITU RECOVERY MINE: FROM LABORATORY TO FIELD EXPERIMENTS USING REACTIVE TRANSPORT MODELLING *H. De Boissezon, M. Descostes (France)*	**D-4**
11:20	BREAK	

SESSION 14 A6/B3: COLLOID FORMATION/COLLOID MIGRATION

Chair: *C. Walther (Germany) and B. Powell (USA)*

11:40	REDUCED URANIUM (VI) MOBILITY DUE TO COLLOID FORMATION IN AN ALKALINE AND SALINE PLUME *M.E. Kirby, J.A. Weddepohl, J.S. Watson, Y. Peng, J.P.L. Kenney, P. Lai, J. Najorka, J. Cuadros, S. Krevor, D.J. Weiss (UK, Canada)*	**A6-1**

12:05	HETEROAGGREGATION BETWEEN INTRINSIC COLLOIDS AND CARRIER COLLOIDS: IMPLICATIONS FOR CERIUM(III) MOBILITY THROUGH FRACTURED CARBONATE ROCKS *E. Tran, O. Klein Ben-David, N. Teutch, N. Weisbrod (Israel)*	**B3-1**
12:30	COLLOIDAL PROPERTIES OF DIFFERENT SMECTITE CLAYS: SIGNIFICANCE FOR BENTONITE BARRIER EROSION AND RADIONUCLIDE TRANSPORT IN HIGH LEVEL WASTE REPOSITORIES *T. Missana, U. Alonso, A.M. Fernández, M. García-Gutiérrez (Spain)*	**A6-2**
12:55	PLUTONIUM OXIDE NANOPARTICLES: FORMATION AND PROPERTIES *A.Yu. Romanchuk, T.V. Plakhova, A.V. Egorov, A.L. Trigub, S.N. Kalmykov (Russia)*	**A6-3**
13:20	LUNCH BREAK	

SESSION 15 B MIGRATION BEHAVIOUR OF RADIONUCLIDES

Chair: *T. Ohnuki (Japan) and D. Arcos (Spain)*

15.00	COMPARATIVE STUDY OF TWO FUNGI AND THEIR MOLECULAR INTERACTIONS WITH URANIUM(VI) AND EUROPIUM(III) *A. Wollenberg, A. Guenther, J. Raff, T. Stumpf (Germany)*	**B-1**
15:25	SPECIATION OF TRANSURANIC RADIONUCLIDES IN WATER BODIES OF SEMIPALATINSK TEST SITE (LABORATORY AND FULL-SCALE EXPERIMENTS) *A. Toropov, L. Rikhvanov (Russia)*	**B-2**
15:50	THE ONE DIMENSIONAL IN-DIFFUSION OF ^{133}Ba IN GRANITIC ROCK CUBES FROM THE OLKILUOTO AND GRIMSEL IN-SITU TEST SITES *E. Muuri, T. Sorokina, D. García, M. Grivé, Jordi Bruno, M. Siitari-Kauppi (Finland, Spain)*	**B-3**

16:15 OXIDATION STATE TRANSFORMATIONS OF PLUTONIUM IN VADOSE ZONE **B-4**
M. Maloubier, D. I. Kaplan, P. M. Almond, H. Emerson, B.A. Powell (USA)

16:40 BREAK

SESSION 16 B6: FIELD AND LARGE SCALE EXPERIMENTS

Chair: T. Payne (Australia) and M.H. Baik (Korea)

17:00 PROGRESSION OF ELEVATED U CONCENTRATION IN DEEP GROUNDWATER AT FORSMARK - PRESENT UNDERSTANDING OF U MOBILITY AT THE SITE **B6-1**
J. Suksi, E-L. Tullborg, I. Pidchenko, L. Krall (Finland, Sweden, Germany)

17:25 URANIUM TRANSFER IN ANCIENT AND MODERN OXIDIZING ENVIRONMENT: AN EXAMPLE OF THE TULUKUY DEPOSIT, TRANSBAIKALIA, RUSSIA **B6-2**
V. Petrov, V. Poluektov, O. Andreeva, J. Hammer (Russia, Germany)

17:50 DETERMINATION OF STRONTIUM-90 AND CAESIUM-137 IN SOILS NEAR THE FUKUSHIMA NPS; TOWARD MODELLING DEPTH PROFILE AND MACRO-SCALE ATMOSPHERIC TRANSPORT **B-5**
T. Sasaki, D. Matoba, T. Kobayashi, K. Fujiwara, T. Dohi, N. Iijima (Japan)

18:15 END OF THE ORAL TALKS THURSDAY

20:00 CONFERENCE BANQUET

FRIDAY (14. SEPTEMBER)

SESSION 17 A1: SOLUBILITY AND DISSOLUTION

Chair: M. Altmaier (Germany) and K. Spahiu (Sweden)

9:15 DOES CARBON-14 RELEASE FROM IRRADIATED ZIRCALOY CLADDINGS? **A1-1**
T. Suzuki-Muresan, M.A. Bahri, R. Bouakkaz, X. Liu, J. Roques, V. Broudic, S. Perrin, M.B. Mokili , C. Landesman, A. Abdelouas, E. Simoni (France)

9:40 SPECIATION OF CARBON-14 RELEASED FROM ACTIVATED STEELS UNDER CONDITIONS OF A GEOLOGICAL REPOSITORY **A1-2**
J. Mibus, N. Diomidis, S. Swanton, T. Suzuki - Muresan, M. Rodríguez Alcalá, J.L. Leganés Nieto, D. Bottomley, M. Herm, E. de Visser - Týnová, B.Z. Cvetkovic, T. Sakuragi, F. Druyts, T. Heikola, S. Williams (Switzerland, UK, France, Spain)

10:05 SOLUBILITY LIMITING SOLID PHASE IN Zr(IV)/Th(IV) HYDROXIDE SYSTEMS UNDER ELEVATED TEMPERATURE: SOLUBILITY AND SWAXS STUDY **A1-3**
T. Kobayashi, S. Nakajima, S. Nishikawa, R. Motokawa, T. Saito, T. Sasaki (Japan)

10:30 SOLUBILITY AND CARBONATE COMPLEXATION OF Tc (IV) IN ALKALINE, DILUTE TO CONCENTRATED SALINE SYSTEMS **A1-4**
A. Baumann, E. Yalçintas, X. Gaona, R. Polly, K. Dardenne, M. Altmaier, H. Geckeis (Germany)

10:55 SOLUBILITY OF TRIVALENT LANTHANIDES IN THE PRESENCE OF CARBONATES **A1-5**
M. Grivé, M. López-García, E. Colàs, I. Campos, B. Madé (Spain, France)

11:20 BREAK

SESSION 18 C5: SAFETY ASSESSMENT AND REPOSITORY CONCEPTS

Chair: *S. Brassinnes (Belgium) and D. Reed (USA)*

11:40 REGULATORY REVIEW OF RADIONUCLIDE SORPTION, SOLUBILITY AND OTHER NON-FLOW MIGRATION PARAMETERS IN THE SAFETY ASSESSMENT FOR A FINAL SPENT FUEL REPOSITORY AT THE FORSMARK SITE IN SWEDEN **C5-1**
B. Strömberg (Sweden)

12:05 HIGH LEVEL RADIOACTIVE WASTE DISPOSAL RELATED RADIOCHEMISTRY RESEARCH ACTIVITIES IN CHINA **C5-2**
C. Liu (China)

12:30 CONTAMINANT TRANSPORT MODEL SUPPORTING THE ASSESSMENT OF THE GROUNDWATER PATHWAYS FOR THE LLWR NEAR-SURFACE REPOSITORY **C5-3**
A. Proverbio, M. Kelly, D. Applegate, D. Jackson (UK)

12:55 EVALUATION OF THE IMPACTS OF NITRATE RELEASED FROM THE TRU WASTE ON THE GEOLOGICAL DISPOSAL REPOSITORY **C5-4**
K. Ishida, K. Fujisaki, I. Matubara, M. Tsukamoto, P. Bruines, K. Abumi, T. Tanaka, D. García, F. Bagaria, E. Coene, O. Silva, M. Grivé, J. Molinero (Japan, Spain)

13.20 **END OF THE CONFERENCE**

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