

# ReCosy 2<sup>nd</sup> Annual Workshop 16<sup>th</sup> to 19<sup>th</sup> March 2009. Larnaca (Cyprus)

## Tuesday 16<sup>th</sup> March

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**14:30-16:30**

**Excom meeting** (restricted to ExCom members)

**16:30-17:30**

**WP2 Internal meeting** (Room 2)

**17:30-18:30**

**WP3 Internal meeting** (Room 1)

**17:30-18:30**

**WP6 Internal meeting** (Room 2)

**18:30-19:30**

**WP4 Internal meeting** (Room 1)

**18:30-19:30**

**WP5 Internal meeting** (Room 2)

**20:00-22:00**

**Ice-breaking with POSTER** (Session with buffet)

## Wednesday 17<sup>th</sup> March

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**8:45-9:15**

**Welcome address** (Reporting by the Coordination Team)

**WP2 plenary: Development of redox determination methods**  
(*WP leader: Michael Kumke, University of Potsdam, Physical Chemistry, (UPPC)*)

**9:15-9:30**

Introduction  
(*WP leader: Michael Kumke, UPPC*)

**9:30-9:45**

Fiber-optic chemical sensing – recent developments  
(*Dörte Steinbrück, UPPC*)

**9:45-10:00**

Electrochemical and fiber-optic oxygen sensor measurements in uranium contaminated biofilms - a collaboration with UPPC  
(*Evelyn Krawczyk-Bärsch, FZD*)

**10:00-10:15**

Spectrophotometric and potentiometric determination of the redox potential in solutions of high ionic strength  
(*Tina Scharge, GRS*)

- 10:15-10:30** Np(V) redox chemistry  
(*David Fellhauer, JRC, Marcus Altmaier, KIT-INE*)
- 10:30-11:00 COFFEE BREAK**
- 11:00-11:15** Iodine speciation in the presence of humic acid and kaolinite  
(*Edit Marosits, TUG*)
- 11:15-11:30** Amperometric determination of the redox potentials  
(*Michel Perdicakis, CNRS/ LCPME*)
- 11:30-11:45** Speciation redox of selenium under hyperalkaline conditions  
(*Bernd Grambow, Subatech*)
- 11:45-12:00** Redox potential determination using complementary approaches: geochemical modelling and continuous potential measurements on multi-electrodes  
(*Stephanie Betelu, Christophe Tournassat and Ioanis Ignatiadis, BRGM*)
- 12:00-12:15** Final Discussion or Outcome of ICE
- 12:15-13:45 LUNCH**
- WP3 plenary: Redox response of defined and near-natural system**  
(*WP leader: Laurent Charlet, Centre National de la Recherche Scientifique / Geophysics and Intern Tectonophysics Laboratory (CNRS/ LGIT)*)
- 13:45-13:50** Introduction  
(*WP leader: Laurent Charlet, CNRS/LGIT*)
- 13:50-14:10** Distribution of redox elements and speciation solubility results as a first approach to the general characterisation of the redox systems in the Swedish candidate sites for deep disposal of nuclear waste  
(*María J. Gimeno, Luis F. Auqué, Patricia Acero, Javier B. Gómez, M. Pilar Asta, UNIZAR*)
- 14:10-14:30** Lack of redox responses in certain cases on Boda Claystone samples as reflected in the  $\text{Fe}^{2+}/\text{Fe}^{3+}$  ratios of minerals  
(*K. Lazar, J. Megyeri and Z. Mathe, II-HAS*)
- 14:30-14:50** Se and U redox chemistry in presence of Fe(II) rich carbonates and sulfides of Se and U towards Fe(II) in presence of carbonate or sulfide minerals  
(*L. Charlet, S. Chakraborty, A. Fernandez-Martinez, F. Bardelli, F. Molton, G. Garbarino (CNRS)*)

**14:50-15:10** Interest in chemical and electrochemical approaches to investigate abiotic pyrite reactivity versus nitrate  
*(I. Ignatiadis, F. Chainet, S. Betelu, E. Gaucher, C. Tournassat (BRGM))*

**15:10-15:30** Kinetics of pyrrhotite oxidation  
*(Arcos, D., Richard, L., Rojo, I., Clarens, F., De Pablo, J. (AMPHOS and CTM))*

**15:30-16:00 COFFEE BREAK**

**WP4 plenary: Redox reactions of radionuclides**  
*(WP leader: Jan Tits, Paul Scherrer Institut (PSI))*

**16:00-16:10** Introduction  
*(WP leader: Jan Tits, PSI)*

**16:10-16:30** Investigations on U(IV) / U(VI) redox chemistry – Work at Chalmers University of technology  
*(Stellan Holgersson, CTH)*

**16:30-16:50** In situ characterization of pyrite interaction with atmospheric oxygen and iodine species using scanning reference electrode (SRET) and dielectric techniques  
*(Michel Perdicakis, LCPME, CNRS - Nancy)*

**16:50-17:10** Status of the investigations on the influence of the redox speciation on the uptake of Neptunium by cementitious materials  
*(Jan Tits, PSI)*

**17:10-17:30** Determination of redox processes in biofilms from acidic waters  
*(Evelyn Krawczyk-Baersch, FZD)*

**17:30-17:50** Effect of micro-organisms on Plutonium oxidation states. Plutonium oxidation state distribution in natural clays  
*(Benedikta Lukšienė, IPL)*

**17:50-18:10** Effect of Anthropogenic Organics on the Fate of Technetium in a UK Intermediate-Level Nuclear Waste Repository  
*(Ricky Hallam, ULOUGH)*

**20:00 WORKSHOP DINNER**

## Thursday 18<sup>th</sup> March

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**WP5 plenary: Redox processes in radionuclide transport**  
(WP leader: *Juhani Suksi, University of Helsinki (HU)*)

- 8:45-9:05** Introduction  
(WP leader: *Juhani Suksi, HU*)
- 9:05-9:25** Status of the work on actinide and Tc interaction with fracture filling material, clay and magnetite nanoparticles  
(*Thorsten Schäfer, KIT-INE*)
- 9:25-9:45** Status of the work on natural U redox-state immobilized on fracture surfaces  
(*Juhani Suksi, HU*)
- 9:45-10:05** Redox Chemistry of Sulfate and Uranium in a Phosphogypsum Stack  
(*Ioannis Paschalidis, UCYPRUS*)
- 10:05-10:25** Retarded diffusion of uranyl ions through Boda Claystone samples  
(*Karoly Lazar, II-HAS*)

**10:30-11:00 COFFEE BREAK**

**WP6 plenary: Redox reactions affecting the spent fuel source-term**  
(WP leader: *Detlef Wegen, Joint Research Centre – Institute for Trans-uranium Elements (JRC-ITU)*)

- 11:00-11:15** Introduction  
(WP leader: *Detlef Wegen, JRC*)
- 11:15-11:30** Studies on Spent Fuel in Presence of Corroding Fe and on Thin Film Model Systems  
(*Detlef Wegen, JRC*)
- 11:30-11:45** Corrosion of Spent Fuel in Presence of H<sub>2</sub>  
(*Paul Carbol, JRC*)
- 11:45-12:00** Combined Effect of Metallic Inclusions and Rare Earth Doping on the Oxidative Dissolution of UO<sub>2</sub>  
(*Mats Jonsson, KTH*)
- 12:00-12:15** Mobilization and Immobilization of Radionuclides from Spent Nuclear Fuel in Presence of Magnetite  
(*D. Wegen, JRC on behalf of [A. Loida](#), KIT-INE*)

**12:15-12:30** Np-Pu Immobilization on Iron Surface at Simulated HLW Repository Conditions  
(*K. Spahiu, SKB or P. Carbol, JRC on behalf of D. Cui, Studsvik*)

**12:30-12:45** The Effect of Iron Corrosion on Redox Potential  
(*David Dobrev, NRI*)

**13:00-14:30 LUNCH**

**TOPICAL SESSION: Redox determination by thermodynamic methods and the associated Thermodynamic databases**

**14:30-15:15** Assessment of kinetic constraints on the establishment of redox sensitive solubility equilibria  
(*Bernd Grambow, ARMINES*)

**15:15-16:00** Current Status of the HATCHES Thermodynamic Database to Support Safety Case Development of a UK Geological Disposal Facility  
(*Tara Beattie, NDA*)

**16:00-16:30 COFFEE BREAK**

**16:30-17:15** The development of Thermochimie, the ANDRA database  
(*Lara Duro, AMPHOS*)

**17:15-18:00** THEREDA - a thermodynamic reference database for radwaste repositories in Germany  
(*Vincenz Brendler, FZD*)

**18:00-19:00**  
**Interlab meeting** (Room 1)

**18:00-19:00**  
**EUCG meeting** (Room 2)

**20:00-22:00**  
**POSTER session with buffet**

## Friday 19<sup>th</sup> March

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**WP1 plenary: Harmonization of work program and documentation of redox implications for the Safety Case**

*(WP leader: Lara Duro, Amphos 21 (AMPHOS))*

**9:00-9:45** Status of the project  
*(WP leader: Lara Duro, AMPHOS)*

**9:45-10:15 COFFEE BREAK**

**10:15-11:15 Reporting by the Coordination Team**  
*(Coordination Team: Gunnar Buckau, Bernhard Kienzler (KIT-INE), Lara Duro, Mireia Grivé, Vanessa Montoya (AMPHOS))*

**11:15-12:15 General Assembly**  
*(Chair: Bernd Grambow, (ARMINES))*

	16 <sup>th</sup> March (Tuesday)	17 <sup>th</sup> March (Wednesday)	18 <sup>th</sup> March (Thursday)	19 <sup>th</sup> March (Friday)
8:30-9:00		(8:45 a.m) <b>Welcome Address</b>	(8:45 a.m)	
9:00-9:30			<b>WP5 plenary</b>	<b>WP1 plenary</b>
9:30-10:00		(9:15 a.m) <b>WP2 plenary</b>		<b>COFFEE BREAK</b>
10:00-10:30		<b>COFFEE BREAK</b>	<b>COFFEE BREAK</b>	(10:15 a.m) <b>Reporting by the CT</b>
10:30-11:00		<b>WP2 plenary</b>	<b>WP6 plenary</b>	(11:15 a.m) <b>General assembly</b>
11:00-11:30				
11:30-12:00			<b>LUNCH</b>	
12:00-12:30				
12:30-13:00		(12:15 p.m) <b>LUNCH</b>		
13:00-13:30			<b>WP3 plenary</b>	
13:30-14:00				
14:00-14:30		<b>Excom meeting</b> (Restricted to Excom Members)	(13:45 p.m) <b>WP4 plenary</b>	<b>TOPICAL SESSION</b>
14:30-15:00			<b>COFFEE BREAK</b>	<b>COFFEE BREAK</b>
15:00-15:30			<b>WP2 internal meeting</b> (Room 2)	<b>TOPICAL SESSION</b>
15:30-16:00				
16:00-16:30	<b>WP3 internal meeting</b> (Room 1)	<b>WP6 internal meeting</b> (Room 2)	<b>Interlab meeting</b>	
16:30-17:00	<b>WP4 internal meeting</b> (Room 1)	<b>WP5 internal meeting</b> (Room 2)		<b>EUCG meeting</b>
17:00-17:30				
17:30-18:00				
18:00-18:30				
18:30-19:00				
19:00-19:30				
19:30-20:00				
20:00-20:30	Ice-breaking with <b>POSTER</b> session with <b>buffet</b>	<b>WORKSHOP DINNER</b>	<b>POSTER</b> session with <b>buffet</b>	
20:30-22:00				