

# 6<sup>th</sup> International Workshop on Mechanisms and Modelling of Waste / Cement Interactions and WP CORI Workshop



PLACE: FACULTY OF NUCLEAR SCIENCES AND PHYSICAL ENGINEERING  
CTU IN PRAGUE, BŘEHOVÁ 7/78, 115 19 PRAGUE 1, CZECH REPUBLIC  
DATE: 20.–23. 11. 2023

## Monday / 20. 11. 2023

12:00	<b>Registration</b>
13:00	<b>Lunch</b>
14:00	Opening Session
14:10	<b>Tiziana Missana</b> – Analysis of ettringite surface charge properties for an improved radionuclide sorption modelling in cement
14:30	<b>Yogarajah Elakneswaran</b> – Surface characteristics and anionic radionuclide immobilisation of phosphate-activated metakaolin-based geopolymers
14:50	<b>Gregor Gluth</b> – Chemical resistance of hybrid cements against aggressive saline solutions
15:10	<b>Flash Presentations 1</b> <b>Hoarau Belkhiri</b> Effect of irradiation <b>Mejdi Neji</b> Influence of porosity network <b>Omar Al Najjar</b> Revealing effect of gamma <b>Marcus Altmaier</b> Summary of WP CORI results <b>Mazen Israel</b> Multiscale study of chloride <b>Diana Tkachenok</b> Radionuclide sorption <b>Xavier Gaona</b> Solubility and hydrolysis of U(IV) <b>Martin Vlk</b> Radiolysis and hydrolysis of PAN <b>Martin Vlk</b> The products of hydrolysis <b>Asta Judzentiene</b> Cement superplasticizer
16:00	<b>Coffee break</b>
16:20	<b>Hajime Kinoshita</b> – Effects of sodium carbonate on M-S-H cement formation for cementation of magnox sludge
16:40	<b>Erich Wieland</b> – Speciation of iron in cementitious environments
17:00	<b>John Provis</b> – Learning from multi-decade aged cement samples

	<b>Flash Presentations 2</b>	
	<b>Marko Štrok</b>	Sorption of polyethylene glycol
	<b>Delphine Durce</b>	Cellulose degradation products
	<b>Peter Szabo</b>	Uptake of radionuclides
	<b>Václav Znamínko</b>	Interaction cementitious materials
17:20	<b>Sarah Saslow</b>	Organic compounds - radionuclides
	<b>Petr Večerník</b>	Interaction of Ni-63 tracer
	<b>Petr Večerník</b>	Alternative infill materials
	<b>Fadi Althoey</b>	Influence of activation
	<b>Richard Laflotte</b>	Search for a cementitious matrix
	<b>María Criado</b>	Alkali-activated cements
<b>18:10</b>	<b>Poster session + Dinner</b>	

## Tuesday / 21. 11. 2023

8:30	<b>Mejdi Neji</b> – Effect of Mg-bearing water on the chemo-mechanical properties of an industrial low C/S cement paste
8:50	<b>Alexandre Dauzeres</b> – Mg-disturbance consideration in models for predicting the behavior of low-pH concrete structures in radioactive waste disposal
9:10	<b>Haibing Shao</b> – Two-phase reactive transport modelling of heterogeneous gas production in low- and intermediate-level waste repository filled with cement
9:30	<b>Chen Gruber</b> – Simulation and characterization of long-term performance for cement-rock interfaces
9:50	<b>Andreas Jenni</b> – Coupling of porosity and transport at highly reactive cement interfaces: open issues
<b>10:10</b>	<b>Coffee break</b>
10:40	<b>Pierre Henocq</b> – Diffusion coefficient of radionuclides in cement-based materials: investigating the effect of the charged surfaces
11:00	<b>Diederick Jacques</b> – Insights of NaNO <sub>3</sub> -CaSO <sub>4</sub> interactions with cement and host rock from Eurobitum bituminized waste using a coupled reactive transport model at the disposal cell scale
11:20	<b>Céline Cau Dit Coumes</b> – Understanding the behaviour of magnesium phosphate cement paste under leaching: experimental and modelling approaches
11:40	<b>Raúl Fernández</b> – Leaching behaviour of cement encapsulated thermally treated organic ion exchange resins
12:00	<b>Gayelle Fahed</b> – Multi ionic penetration in slag or fly ash cementitious matrices: Mechanisms and modelling

<b>12:20</b>	<b>Lunch</b>
14:00	<b>Julie Pouya</b> – Chemo-mechanical modeling of cement pastes swelling and cracking subjected to external weak sulfate attacks
14:20	<b>Andrey Kalinichev</b> – Structure and properties of calcium aluminates as adsorbents for anionic radionuclides
14:40	<b>Barbara Lothenbach</b> – Modelling Se(IV) and Se(VI) sorption on AFm phases
15:00	<b>Oscar Almendros-Ginestà</b> – Radionuclide sorption in portlandite: experimental and modelling
15:20	<b>Jan Tits</b> – Sorption of <sup>32</sup> Si and <sup>45</sup> Ca by isotopic exchange during recrystallisation of cement phases
<b>15:40</b>	<b>Coffee break</b>
16:00	<b>Agathe Bourchy</b> – Evolution of hydrated lime-based cementitious waste forms during leach testing leading to enhanced technetium retention
16:20	<b>Marta Castellote Armero</b> – Adsorption of organic molecules on different cementitious matrixes
16:40	<b>Nathalie Macé</b> – Effect of cellulosic degradation products onto radionuclide transport in cementitious matrices
17:00	<b>Yikai Liu</b> – Toward sustainable and low carbon remediation of brownfield sites: Substitutes for Portland cement
17:20	Closing session
<b>19:00</b>	<b>Conference Dinner</b> Benedictine Archabbey of St Adalbert and St Margaret, Markétská 1/28, Břevnov Home (brevnov.cz)

## Wednesday / 22. 11. 2023

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8:30	<b>Tiziana Missana</b> – Role of isosaccharic acid on $^{63}\text{Ni}$ diffusion in degraded cements
8:50	<b>Yaana Bruneel</b> – Influence of organics on the solubility, retention and mobility of uranium in cementitious systems
9:10	<b>Marta Lopez-Garcia</b> – Interactions of organic molecules and uranium with calcium aluminum silicate hydrates
9:30	<b>Margret Acker</b> – Influence of the cement additive PBTC on aquatic uranium(VI) speciation and retention on cementitious material
9:50	<b>Jerome Kretzschmar</b> – Influence of selected organics on the retention of uranium(VI) by calcium-(aluminate-)silicate-hydrate phases
<b>10:10</b>	<b>Coffee break</b>
10:40	<b>Rūta Druteikienė</b> – Uptake of Pu and Am (III) by hardened cement paste at pH 12.5 in the presence of organic ligands
11:00	<b>Rosa Ester Guidone</b> – Impact of formate, citrate and gluconate on the retention of An(III)/Ln(III) and An(IV) by cement phases
11:20	<b>Naila Ait-Mouheb</b> – Effect of phthalates on the migration behaviour of Am(III) and Eu(III) in cementitious materials
11:40	<b>Marta Burešová</b> – Sorption of europium on cement-based barrier materials in the presence of organic substances
12:00	<b>Aline Thumm</b> – Sorption of Eu(III) and Cm(III) in C-S-H phases in presence of EDTA at intermediate ionic strength conditions
<b>12:20</b>	<b>Lunch</b>
14:00	<b>Barbora Drtinová</b> – Sorption of lead on hydrated cement paste CEM I under various conditions
14:20	<b>Xavier Gaona</b> – Uptake of strongly hydrolyzing metal ions by cement: quantitative description and impact of organic ligands
14:40	<b>Svante Hedström</b> – Cement-waste interactions in the final repositories for radioactive waste in Sweden
15:00	<b>Typhaine Guillemot</b> – Degradation of organic materials and associated gas generation rates in the context of a Swiss L/ILW deep geological repository
15:20	<b>Nele Bleyen</b> – Effect of gamma-irradiation on subsequent hydrolytic degradation of cellulosic tissues under alkaline and anoxic conditions
<b>15:40</b>	<b>Coffee break</b>
16:00	<b>Hugo Danis</b> – Chemical evolution and performance of $\gamma\text{-MnO}_2$ / $\text{Ag}_2\text{CO}_3$ hydrogen getter in cementitious environment

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16:20	<b>Anne Mette Bagger</b> – Evaluating mine tailings’ potential as precursors for alkali activation
16:40	<b>María Cruz Alonso</b> – Interaction of Al alloys with MKPC and OPC based binders on the metal-matrix interface
17:00	<b>Sarah Saslow</b> – CERIA impact on cementitious material properties
<b>17:20</b>	<b>Closing session</b>

## Thursday / 23. 11. 2023

9:00–10:30	<p><b>Task1</b> Status and general overview, MS+DEL, data deposit, outlook on EURAD and Final Event. PMO feedback</p> <p><b>Task 2</b> Overview. Discussion of main results.</p>
<b>10:30</b>	<b>Coffee break</b>
11:00–13:00	<p><b>Task 3</b> Overview. Discussion of main results.</p> <p><b>Task 4</b> Overview. Discussion of main results. Discussion: impact of “real leachates”.</p>
<b>13:00</b>	<b>Lunch</b>
14:30–18:00	Impact + Application to Safety Case General discussion on applied aspects / impact. End User feedback.
<b>19:00</b>	<b>CORI Dinner</b> SLIVOVITZ MUSEUM, U Lužického semináře 116, Malá Strana