



---

# RADICAL BEHAVIOR 2018

## Würzburg, DE

---

Authors: Hitos GALÁN (CIEMAT), Christian EKBERG (CHALMERS) and Andreas GEIST (KIT)

Version: 5 — 6 April 2018

### **Venue**

Juliusspital  
Klinikstraße 1, 97070 Würzburg

### **Dinner**

Bürgerspital Weinstuben  
Theaterstraße 19, 97070 Würzburg

**WEDNESDAY, 18 APRIL 2018**

**BÜRGERSPITAL WEINSTUBEN**

**19:00**

**DINNER**

**THURSDAY, 19 APRIL 2018**

**JULIUSSPITAL, GARTENPAVILLON**

**8:30–9:15**

**REGISTRATION**

**9:15–9:30**

**WELCOME**

**9:30–10:15**

**PLENARY 1**

9:30–10:15

Bruce MINCHER, Idaho National Lab  
*Radical Behavior in Würzburg; what have we learned since 2015?*

**10:15–11:05**

**FUNDAMENTAL ISSUES, TECHNIQUES, FACILITIES**

10:15–10:40

Andrew R. COOK, Brookhaven National Lab  
*Ultrafast hole capture following radiolysis*

10:40–11:05

Stephen MEZYK, CSU Long Beach  
*Radical kinetics of metal-ligand complexes in the organic phase*

**11:05–11:30**

**COFFEE BREAK**

**11:30–12:30**

**RADIOLYSIS OF ORGANIC AND AQUEOUS SYSTEMS**

11:30–11:55

Peter ZALUPSKI, Idaho National Lab  
*En route to complete mineralization of organic species: free-radical-induced degradation of small carboxylic acids*

11:55–12:20

Laurence BERTHON, CEA  
*Investigation of Pu(IV) – N,N dialkylamide complexes in solution under ionizing radiation*

12:20–12:30

Discussion time

**12:30–13:30**

**LUNCH BREAK**

## 13:30–15:00 RADIOLYSIS OF ORGANIC AND AQUEOUS SYSTEMS

- 13:30–13:55 Andreas WILDEN, Jülich  
*Radiolytic degradation of hydrophilic diglycolamides*
- 13:55–14:20 Elena MACERATA, Politecnico di Milano  
*A review of ageing, hydrolysis and radiolysis effects on PyTri-based stripping solvents for i-SANEX/GANEX processes*
- 14:20–15:00 Discussion time

## 15:00–15:30 COFFEE BREAK

## 15:30–17:00 IRRADIATION EXPERIMENTS SETUP: HOW AND WHY

- 15:30–15:55 Dean PETERMAN, Idaho National Lab  
*Continuing Studies into the Impacts of Gamma Radiolysis on ALSEP and Related Solvent Extraction Systems*
- 15:55–16:20 Hitos GALÁN, CIEMAT  
*Relevant experimental conditions to perform stability studies of extraction systems based on diglycolamides and water soluble stripping agents*
- 16:20–17:00 Discussion time

FRIDAY, 20 APRIL 2018

JULIUSSPITAL, GARTENPAVILLON

## 9:00–9:45 PLENARY 2

- 9:00–9:45 Marie-Christine CHARBONNEL, CEA  
*Importance of stability studies in the development of a new solvent extraction process for the multi-recycling of uranium and plutonium from spent nuclear fuels*

## 9:45–10:35 MODELLING

- 9:45–10:10 Robin ORR, NNL  
*Modelling the long-term radiation chemistry of nitrate and nitric acid solutions*
- 10:10–10:35 Ashleigh KIMBERLIN, CEA  
*Investigation of TODGA radiolysis by combining experimental and computational approaches*

## 10:35–11:00 COFFEE BREAK

**11:00–12:15      GAS GENERATION AND SAFETY ISSUES**

- 11:00–11:25      Daniel WHITTAKER, NNL  
*Tracking hydrogen formation in static vessels containing solutions relevant to the i-SANEX process under gamma irradiation*
- 11:25–11:50      Gregory HORNE, Idaho National Lab  
*Inhibition of radiolytic molecular hydrogen formation by quenching excited state water from gamma and alpha radiolysis of nitric acid solutions*
- 11:50–12:15      Jamie SOUTHWORTH, University of Manchester  
*Investigation of anomalous H<sub>2</sub> and O<sub>2</sub> production from water adsorbed to metal oxide surfaces.*

**12:15–12:40      WRAP-UP DISCUSSION****12:40–13:00      CLOSING****13:00–14:00      LUNCH**