

PP Kick-Off 2022

13.-14. January 2022, Alte Mensa, Freiberg

13. January 2022

08.00 hrs Registration

08.30 hrs **Welcome note and introduction to the PP 2315 „EnAM“** by Prof. Peuker

09.00 hrs **Project presentations** (15 minutes presentation + 5 minutes discussion)

- 09.00 hrs Slag synthesis, design and characterization – central project (Prof. Peuker, Prof. Friedrich; Freiberg/ Aachen)
- 09.40 hrs Development of a continuous process chain for mechanical separation of EnAM from solidified metal slags (Dr. Gleiß; Karlsruhe)
- 10.00 hrs Multidimensional probabilistic characterization of slag materials for the optimization of cooling, comminution and separation processes, using statistical image analysis supported by machine learning (Orkun Furat, Prof. Schmidt; Ulm)

10.20 hrs coffee break

- 10.50 hrs Thermodynamic database development for the Li₂O-Al₂O₃-SiO₂-MnOx system: application for Li recycling (Dr. Fabrichnaya; Freiberg)
- 11.10 hrs Accelerated discovery of artificial minerals from machine-supported slag admixture and liquid-state processing (Jun.-Prof. Fuhrmann, Prof. Wondraczek; Freiberg/ Jena)
- 11.50 hrs Exploration of the compositional phase space of metallurgical slag models for a rational design of processes of refractory metal recovery through smelting and recrystallization (Prof. Mädler, Prof. Ciacchi; Bremen)

12.30 hrs lunch break

- 13.30 hrs Investigation of phase formation and phase constitution in the systems Li-Al-Mg-O and Li-Al-Mn-O with special focus on spinel solid solutions (Dr. Schirmer, Prof. Ludwig; Clausthal/ Bochum)
- 14.10 hrs MEPP based modelling and simulation of phase transformation and phase formation in the LAS system by considering mixed kinetic phenomena during solidification (Prof. Fischlschweiger; Clausthal)
- 14.30 hrs Formation of Ta-rich magnetite phases in WEEE recycling slags through modification and controlled cooling (Project group B (No. 8): processing of liquid slags & crystallisation) (Prof. Friedrich; Aachen)
- 14.50 hrs Formation of critical compounds in recycling slags – a study of the melt chemistry with MD simulations and of the solidified compounds in a micro preparation approach (Prof. Fittschen, Jun.-Prof. Gunkelmann, Dr. Schirmer; Clausthal)
- 15.30 hrs Charge-induced dry concentration of lithium-containing components in fine slag powders (Prof. Weber, Dr. Wollmann; Clausthal)
- 16.10 hrs FlotEnAMIS – Efficient Flotation of Engineered Artificial Minerals from Metallurgical Slags by Exploiting Interaction Scanning (Dr. Rudolph; Freiberg)

16.30 hrs coffee break and poster session

17.30 hrs end of day 1

Evening program –

14. January 2022

09.00 hrs **Project presentation** (15 minutes presentation + 5 minutes discussion)

- 09.00 hrs Single particle analysis for predictive EnAM processing (SPA-4-EnAM)
(Dr. Leißner, Dr. Godinho; Freiberg)
- 09.40 hrs Switchable selective collectors for flotation of engineered artificial minerals
(Prof. Schmidt; Clausthal)
- 10.00 hrs Selective Agglomeration of Engineered Artificial Minerals (EnAM) in a
Suspension of Comminuted Slag
(Prof. Bröckel; Birkenfeld)
- 10.20 hrs Numerical investigation of the liberation of critical raw materials in the form
of Engineered Artificial Minerals (EnAMs) from tailored solidified slag phases by DEM-based
comminution modelling
(Prof. Kruggel-Emden; Berlin)

Ca. 10.40 hrs coffee break

- 11.00 hrs Breakage mechanism in heterogenous structures – combining microstructure
of EnAM and breakage / liberation behavior
(Prof. Peuker; Freiberg)
- 11.20 hrs Semi-Mechanistic Modelling of Fracture Mechanisms of Engineered Artificial
Minerals
(Prof. Schilde, Prof. Kwade; Braunschweig)
- 12.00 hrs The Interaction of Stress conditions, Engineered Artificial Minerals Structure
and Formulation in Wet Comminution and Separation
(Prof. Breitung-Faes; Braunschweig)

12.20 hrs closing speech, followed by lunch break

Departure of participants