Aalto University
School of Chemical Engineering

https://www.aalto.fi/school-of-chemical-engineering
https://into.aalto.fi/display/endoctoralchem
puh. 050 577 3736 Sirje Liukko

Defence announcement **Public Defence on 16 February 2024**

CFD-DEM simulation of copper droplet interactions during smelting

Title of the doctoral thesis	Matte–slag interaction simulation in the flash smelting settler using coupled CFD-DEM
Content of the doctoral thesis	Novel method was created for simulating interactions of small droplets during copper smelting process. Two modelling methods were coupled to solve a common case and new submodels were created to simulate coalescing droplets and effect of reactions. With the simulations, a flow phenomenon was observed which highly increases settling rate of the droplets, and thus, is an important factor for limiting copper losses. The method offers higher accuracy compared to more traditional CFD simulations as each droplet is individually simulated. As this increases needed computation power, the method is currently better suited to simulating smaller details instead of full-scale smelting process.
Field of the doctoral thesis	Metallurgy
Doctoral candidate and contact information	M.Sc. (Tech.) Jani-Petteri Jylhä jani.jylha91@gmail.com
Public defence date and time	16 February 2024 at 12 o'clock (in Finnish time)
Remote defence	https://aalto.zoom.us/j/65287077682
Place of public defence	Aalto University School of Chemical Engineering, Circular Raw Materials Hub, lecture hall Aluminium, Vuorimiehentie 2, Espoo
Opponent(s)	Professor Henrik Saxén, Åbo Akademi University, Finland
Custos	Professor emeritus Ari Jokilaakso, Aalto University School of Chemical Engineering
Link to electronic thesis	https://aaltodoc.aalto.fi/handle/123456789/51
Keywords	Computational methods, Copper, Droplets