

# Free Workshop Oct 20, 2017

## Thermodynamics-Based Process Simulation



Bond Place Hotel  
65 Dundas Street East Toronto,  
Ontario M5B 2G8 Canada

[training@m4dynamics.com](mailto:training@m4dynamics.com)  
647 890 1334

All participants will receive free demos of COMSOL®, FactSage™ and M4Dlib™

Spaces are limited

Register now!

at

[www.m4dynamics.com](http://www.m4dynamics.com)

M4Dynamics™ invites you to a free workshop on Thermodynamics-Based Process Simulation. This event is for anyone who wants to advance their skills for simulating metallurgical processes. Join us for a day of talks and live demos by experts from M4Dynamics and GTT-Technologies.

- Attend live demos on how to model combined Multiphysics and Thermodynamics simulations using COMSOL®, M4Dlib™, and SimuSage™ Applications.
- Learn how to use the latest tools on thermodynamics simulation for metallurgical processes.





## Tanai Marin-Alvarado

Tanai Marin-Alvarado is a Mining and Metallurgical Engineer from the University of Chile where he obtained his Masters in Science in Extractive Metallurgy in 2001. Later in 2006, he obtained his PhD in Material Science and Engineering at the University of Toronto. Tanai has more than 15 years of experience working in industrial research projects with Smelters from Chile, Canada and Germany. Since 2008 he has worked at Vale Canada Ltd., becoming Sr. Research Metallurgist. During all of these years, he has accumulated great experience developing thermochemical and multiphysics simulation applications using FactSage, SimuSage and COMSOL Multiphysics™ on the field of Mining and Extractive Metallurgy, which resulted in the creation of M4Dynamics™ in 2015, a consulting and software developing company based in Toronto, quickly becoming a COMSOL® Certified Consultant.



## Stephan Petersen

Stephan Petersen graduated from RWTH Aachen University, Germany in metallurgical engineering and material science. He subsequently joined the Institute of Solid State Research at the Research Center Juelich, where he worked on high-pressure solution growth and defect thermochemistry of gallium-arsenide, which formed the basis for his Ph.D. thesis. He is a partner at GTT-Technologies, Germany, which has specialized in the field of technical thermochemistry since 1983, being among the pioneers in the practical application of thermochemistry to analyze industrial problems. With over 25 years of professional experience in this area, his primary interests lie in the development of ChemApp™ and SimuSage™, and their application to thermochemical process simulation and optimization."

## Program

9:00 - 9:30	Registration
9:30 - 9:45	<b>M4Dynamics Introduction</b>
10:00-11:00	Combining Multiphysics & Thermodynamics Simulation with COMSOL® & M4Dlib™ M4D-CCI™
11:00 - 11:15	<b>Break</b>
11:15 - 12:15	Thermochemistry-based process simulation with ChemApp™, SimuSage™, and ChemSheet.
12:15 - 1:15	<b>Lunch</b>
1:30 - 3:00	Live Demo COMSOL® & M4Dlib™
3:00 - 3:15	<b>Break</b>
3:15 - 4:45	Live Demo SimuSage™
4:45 - 5:00	<b>Closing Remarks</b>

