

Special Issue on
**Advances in Numerical Simulations of
Hydrothermal Ore Forming Processes**

CALL FOR PAPERS

Recent advances in numerical modeling techniques have led to unprecedented opportunities for exploring and quantifying the controlling factors of hydrothermal ore forming processes. Such systems are challenging to study because the driving forces are mutually coupled and consist of complex chemical and physical processes of fluid-rock interaction that evolve transiently in space and time. Reading the geological and geochemical records archived in an ore deposit requires an in-depth understanding of both driving forces: chemical aspects are responsible for alteration and ore precipitation and include the thermodynamics of complex fluid-mineral equilibria and the molecular controls of metal speciation in aqueous fluids; physical aspects are responsible for heat and mass transfer by fluid flow and the evolution of permeability, porosity, and fractures networks. The increasingly rigorous and predictive capabilities of modern numerical methods allow mutual testing of simulation results and field-based interpretations, making them very powerful tools in geosciences.

The purpose of this special issue is to bring together a series of contributions of research and review articles showing recent advances in the development and application of state-of-the-art numerical models for the simulation of ore forming processes. This issue will cover aspects of thermodynamics of fluid-rock equilibria, large scale physical and chemical reactive mass transport models, and molecular models of metal speciation.

Potential topics include but are not limited to the following:

- ▶ New numerical methods and approaches for solving complex chemical fluid-rock equilibria
- ▶ Coupling of physical and chemical reactive transport models
- ▶ Hydrothermal fluid flow: controls, mechanisms, and patterns
- ▶ Molecular modeling of metal complexation
- ▶ Thermodynamic databases and P-T predictions for simulating ore forming processes
- ▶ Simulations of fluid-fluid and fluid-rock reactions in natural systems
- ▶ Link between numerical simulations and field observations

Authors can submit their manuscripts through the Manuscript Tracking System at <https://mts.hindawi.com/submit/journals/geofluids/hydro/>.

Papers are published upon acceptance, regardless of the Special Issue publication date.

Lead Guest Editor

Alexander Gysi, Colorado School of Mines, Golden, USA
agysi@mines.edu

Guest Editors

Yuan Mei, CSIRO, Canberra, Australia
yuan.mei@csiro.au

Thomas Driesner, ETH Zurich, Zürich, Switzerland
thomas.driesner@erdw.ethz.ch

Submission Deadline

Friday, 28 September 2018

Publication Date

February 2019