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## High performance computing in pyrometallurgy

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Pyrometallurgy refers to high temperature (>1600°C) extraction of valuable metals from mineral ore deposits. Most pyrometallurgical processes occur in furnaces of various types in which many complex phenomena are occurring simultaneously. Almost none of these phenomena can be observed directly due to the extreme conditions inside furnace vessels. Computational modelling is invaluable in understanding the processes in and around furnaces and is often used for design and optimization. Problems vary from simple CFD analyses to coupled multiphysics applications such as magnetohydrodynamic models of plasma arcs.

High performance computing is a valuable tool for developing increased understanding and better engineering for these challenging problems. A few case studies are given: DC furnace arc modelling, multiphase flow through furnace tap-holes, combustion in a rotary converter and settling of metal and slag.

### Presenter Biography

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