Computational Modelling '15

(Twitter #ComputationalModelling15).

Monday June 8th
16.30-18.00   Registration, wine and cheese reception. Accompanying partners welcome

Tuesday June 9th

08.00   Registration opens. Coffee and light breakfast

09.00   **Welcome to Cornwall**
         B.A. Wills (MEI, UK)

09.20   *Technical Session 1*
         Chairmen: Y.D. Zhou (Tsinghua University, China) and P.R. Brito-Parada (Imperial College, UK)

09.20   **Multi-scale modelling of minerals processing operations**
         M.P. Schwarz, P.T.L. Koh and Y.Q. Feng (CSIRO, Mineral Resources Flagship, Australia) and D. Verrelli (Macquarie University, Australia)

09.40   **Using Smooth Particle Hydrodynamics (SPH) to model multiphase mineral processing systems**
         S.J. Neethling and D.J. Barker (Imperial College, UK)

10.00   **3D numerical study on microwave induced stresses in inhomogeneous hard rocks**
         M. Toifl, R. Meisels, P. Hartlieb, F. Kuchar and T. Antretter (Montanuniversitaet Leoben, Austria)

10.20   Coffee

11.00   **Framework for material modelling in a processing plant**
         M. Bengtsson, E. Hulthén and M. Evertsson (Chalmers University of Technology, Sweden)

11.20   **Effects of spatially-correlated length of microstructure on the pulverizing performance of rock prisms by rolling compression**
         Y.D. Zhou, H. Jiang (Tsinghua University, China), Q.M. Li (China Academy of Safety Science and Technology, China), and X.W. Tang (South China University of Technology, China)

11.40   **Modelling of discrete downtime in continuous crushing operation**
         G. Asbjörnsson, M. Bengtsson, E. Hulthén and M. Evertsson (Chalmers University of Technology, Sweden)

12.00   **Modeling the production rate of a continuous grinding system based on breakage rate of a semi-continuous grinding system**
         A.A. Rafiei, F. Hassani, P. Radziszewski and D.A. Gomez Diaz (McGill University, Canada)

12.20   **Simulation and optimization of ball mill working with phosphate rock using the Moly-Cop Tools**
         A.C. Silva, E.M.S. Silva and J.A.O. Silva (Goiás Federal University, Brazil)

12.40   Lunch

14.00   *Technical Session 2*
         Chairman: M. Bengtsson (Chalmers University of Technology, Sweden)

14.00   **Experimental modelling of energy consumption of a batch grinding system based on mill parameters and breakage rate**
         A.A. Rafiei, N. Gharib, F. Hassani and P. Radziszewski (McGill University, Canada)

14.20 **CFD modelling and analysis of classification of fine coals of different densities in large-diameter hydrocyclones**
M. Ghodrat (University of New South Wales, Australia), Z. Qi, S.B. Kuang and A.B. Yu (Monash University, Australia)

14.40 **A CFD-based study of hydrocyclone underflow discharge**
B. Sichinga-Mtonga, G. Akdogan and S.M. Bradshaw (Stellenbosch University, South Africa)

15.00 Coffee

16.30 Optional Guided Coast Path Walk, ending with a beer at the Chain Locker Pub, Old Falmouth. Accompanying partners welcome

Wednesday June 10th

08.45 Coffee and light breakfast

09.20 *Technical Session 3*
Chairmen: J. Chen (Monash University, Australia) and J.H. Zietsman (University of Pretoria, South Africa)

09.20 **Computational investigation of "parcel-particle" concept in CFD-DEM simulation of multiphase flow in dense medium cyclone**
J. Chen, K. Chu and A.B. Yu (Monash University, Australia)

09.40 **An Eulerian-DDPM model for iron ore particles in a spiral concentrator**
D. Boucher, J. Sovechles, A. Sasmito and K. Waters (McGill University, Canada)

10.00 **A Stokesian dynamics approach for simulation of magnetic particle suspensions**
A. Sand, J.F. Stener, J.E. Carlson, B.I. Pålsson (Luleå University of Technology, Sweden) and M.O. Toivakka (Åbo Akademi University, Finland)

10.20 Coffee

11.10 **A mathematical model of dynamics of vibrofluidized granular materials for electrostatic and magnetic separation**
L.A. Vaisberg, K.S. Ivanov, I.V. Demidov, S.V. Dmitriev and A.O. Mezenin (Institude of Problems in Mechanical Engineering of the Russian Academy of Sciences, Russia)

11.30 **Modelling polydispersed flotation columns using population balances in a finite element framework**
G. Bhutani, P.R. Brito-Parada and J.J. Cillers (Imperial College, UK)

11.50 **Prediction of the mixing characteristics of industrial flotation columns using computational fluid dynamics (CFD)**
I. Mwandawande, G. Akdogan, and S.M. Bradshaw (University of Stellenbosch, South Africa)

12.10 **Modelling the hydraulic entrainment phenomenon in micro flotation**
A.C. Silva, E.M.S. Silva and P.G. Júnior (Goiás Federal University, Brazil)

12.30 Lunch

14.00 *Technical Session 4*
Chairman: S. Neethling (Imperial College, UK)

14.00 **Multiphysics modelling of slag temperature fluctuations in a platinum melting furnace**
N.J. Andrew, A. Lexmond and J.H. Zietsman (University of Pretoria, South Africa)

14.20 **Multiphysics modelling of a steel belt sintering process**
W.J. Leipoldt and J.H. Zietsman (University of Pretoria, South Africa)

14.40 **Analysis of uneven particle trajectory in circumferential direction at bell-less type blast furnace top by DEM**
Y. Narita, H. Mio, K. Higuchi and S. Nomura (Nippon Steel & Sumitomo Metal Corporation, Japan)

15.00 **Modelling of kilns and calciners**
N. Kandamby and T. Abbas (Cinar Ltd, UK)

15.20 **Capturing the hydrodynamics of heap leaching in extreme weather conditions**
D. McBride, T.N. Croft, M. Cross (Swansea University, UK) and J.E. Gebhardt (FLSmidth Inc., USA)

15.40 **Quasi-static vs dynamic models for predicting heap leach kinetics**
F. Reyes, Q. Lin and S.J. Neethling (Imperial College, UK)

16.00 Closing remarks and invitation to Computational Modelling '17
A.J. Wills (MEI, UK)

16.10 Cornish cream tea

POSTERS

Mineral flow in silos simulation using CFD and blender
A.C. Silva, E.M.S. Silva and F.A. Reis (Goiás Federal University, Brazil)

Computational modelling of the combustion of ternary coal blends inside blast furnace
Y.S. Shen, A.B. Yu (Monash University, Australia) and T. Shiozawa (University of New South Wales, Australia)

The effect of rotor tip speed of a vertical shaft impactor on the collision energy spectrum
S. Grunditz, C.M. Evertsson, E. Hulthén and M. Bengtsson (Chalmers University of Technology, Sweden)

Advanced material modelling in crushing plants using real time algorithms
M. Bengtsson, E. Hulthén and M. Evertsson (Chalmers University of Technology, Sweden)

CFD modelling and analysis of shaft gas injection into oxygen blast furnaces
S.B. Kuang, Z.Y. Li, A.B. Yu (Monash University, Australia), J.J. Gao, D.L. Yan, Y.H. Qi (Central Iron & Steel Research Institute, China) and Y.T. Li (Baoshan Iron & Steel Co. Ltd, China)