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Cape Town, South Africa
16-19 November 2015

Volume 2 of 2

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Flotation '15



Monday November 16th

- 07.30 Registration desk opens. Light breakfast of filled croissants, tea, coffee and fruit juice
- 08.30 Fundamentals Symposium Opening Remarks and Presentation of MEI Award for 2014
B.A. Wills (MEI, UK)
- 08.45 Setting the scene
J.A. Finch (McGill University, Canada)
- 09.00 *Technical Session 1*
Chairmen: P. Brito-Parada (Imperial College, UK) and E. Forbes (CSIRO Mineral Resources Flagship, Australia)
- 09.00 **Keynote Lecture: What have models and measurements ever done for us?**
J.J. Cilliers (Imperial College, UK)

The history of flotation has key moments when there were significant advances in understanding. It is notable that these moments are punctuated by advances in the theory or the experiment of flotation. These new techniques in modelling and measurement did not develop independently, but advances in one led directly to advances in the other. Subsequent application of these techniques resulted in improved industrial operation. This will be illustrated with a number of specific examples.

Flotation models with rate constants and bubble surface area flux gave a scientific basis to comparisons of conditions and prediction of mineral recovery. Measuring S_B has now become routine. Distributed rate constants gave better industrial flotation models, and the availability and use of MLA data, lately, integrated liberation and size. Entrainment models for gangue recovery, and elegant experiments to measure it, led to grade prediction. Froth recovery completed the model, and a number of techniques to measure R_f were developed. Extending the models into a plant simulator subsequently allowed plant design and optimisation.

Computational Fluid Dynamics is used to predict pulp flow patterns and attachment zones. Validation has required difficult flow visualisation and the use of Positron Emission Particle Tracking. Pulp CFD has been used successfully to design impellers and tanks. Similarly, froth CFD required measurement of air recovery and froth stability. Advances in on-line image analysis and the use of video images and their interpretation are now used as diagnostic and control tools.

Currently, advances in macro- and high-speed photography allow observation of bubble-particle interactions never seen before. These images and videos are compared with 3-D physical visualisations to understand the underlying mechanisms. These new measurements and their interpretation are forcing us to question long-held assumptions on particle and bubble behaviour in flotation, attachment and detachment and bubble film failure. These techniques are yet to be widely applied to industrial problems.

It is clear that advances in theory and experiment take some time to move from the laboratory to the literature and on to the plant. It is also clear that while some advances have made a significant impact on industrial flotation, there is still much potential for further application.

Flotation '15



Twitter #Flotation15

Sunday November 15th

- 14.00 Elsevier Author Workshop; exhibition booth and poster set-up
- 16.30-18.00 Registration and wine reception, with hot and cold canapés (accompanying persons welcome)

Monday November 16th

- 07.30 Registration desk opens. Light breakfast of filled croissants, tea, coffee and fruit juice
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- 09.00 *Technical Session 1*
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 Accompanying guests welcome

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Accompanying guests welcome

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 Accompanying guests welcome

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- 14.15 Optional guided hike to the top of Table Mountain
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