Comminution '10, Cape Town, South Africa, April 13-16, 2010
Sponsored by:

Monday April 12th

16.00-19.00   Registration and Wine Reception

Tuesday April 13th

07.30   Registration Desk Opens

08.30   Opening Remarks
          J. Wills (MEI, UK) and M.S. Powell (JKMRC, Australia)

08.50   *Technical Session 1*
          Chairmen: R.Y. Yang (University of New South Wales, Australia) and P.W. Cleary (CSIRO Mathematical and Information Sciences, Australia)

08.50   **Modeling breakage rates in mills with impact energy spectra and ultra fast load cell data**
          E.T. Tuzcu and R.K. Rajamani (University of Utah, USA)

09.10   **Breakage of particles in unconfined particle beds**
          G.K.P. Barrios, R.M. de Carvalho and L.M. Tavares (Universidade Federal do Rio de Janeiro – COPPE/UFRJ, Brazil)

09.30   **Comparison of different breakage mechanisms in terms of product particle size distribution and mineral liberation**
          Ö. Özcan and H. Benzer (Hacettepe University, Turkey)

09.50   **Influence of grinding media contact points' number in a ball mill on disintegration rate of grains of small size**
          A. Heim and T.P. Olejnik (Lodz Technical University, Poland)

10.10   **Studies of the effect of tracer activity on positron emission particle tracking measurements on tumbling mills at PEPT Cape Town**
          T.S. Volkwyn, I. Govender, A. Buffler, J.P. Franzidis (University of Cape Town, South Africa), N. van der Meulen and E. Vermeulen (iThemba LABS, South Africa)

10.30   Coffee

11.10   **A new method for determination of fine particle breakage**
          D. Ekşi, H. Benzer and A. Sargın (Hacettepe University, Turkey)

11.30   **Power draw estimations in tumbling mills using PEPT**
          L.S. Bbosa, I. Govender, A.N. Mainza (University of Cape Town, South Africa) and M.S. Powell (JKMRC, Australia)

11.50 **Circulation rate modelling of mill charge using position emission particle tracking**
D.V.V. Kallon, I. Govender and A.N. Mainza (University of Cape Town, South Africa)

12.10 **Time-averaged kinematics in tumbling mills using positron emission particle tracking**
A.J. Morrison, I. Govender and A.N. Mainza (University of Cape Town, South Africa)

12.30 **Simulation of a locked-cycle test using a mechanistic ball mill model**
R.M. de Carvalho and L.M. Tavares (Universidade Federal do Rio de Janeiro – COPPE/UFRJ, Brazil)

12.50 Lunch

14.00 *Technical Session 2*
Chairmen: L.M. Tavares (Universidade Federal do Rio de Janeiro – COPPE/UFRJ, Brazil) and M. Evertsson (Chalmers University of Technology, Sweden)

14.00 **Prediction of the Bond Work Index for variability analysis**
V.K. Alves (Vale, Brazil) and C.L. Schneider (CETEM, Brazil)

14.20 **The effect of mixtures of grinding media shapes on milling kinetics**
P. Simba and M.H. Moys (University of the Witwatersrand, South Africa)

14.40 **Using DEM and SPH to model wet industrial banana screens**
J. Fernandez, P.W. Cleary (CSIRO Mathematical and Information Sciences, Australia) and R.D. Morrison (JKMRC, Australia)

15.00 **Study of RTD (residence time distribution) and mill hold up for a continuous centrifugal mill with various G/D ratios**
Hee Chan Cho, Kwan Ho Kim and Hoon Lee (Seoul National University, South Korea)

15.20 Coffee

16.00 **Classifying best access points for return of external flows into flowsheets**
P. Oghazi and B.I. Pålsson (Luleå University of Technology, Sweden)

16.20 **Using the same type of hydrocyclones for different duties in the circuit and their contribution to overall plant performance**
A.N. Mainza (University of Cape Town, South Africa), M. Lombard, J. Obiri-Yeboah and S. Arthur (Tarkwa Gold Mine, Ghana)

16.40 **Comparison of different chemicals used in grinding operation on the quality of the cement and the performance of the grinding circuit**
N.A, Toprak, O. Altun, N. Aydogan and H. Benzer (Hacettepe University, Turkey)

17.00 **Can cyclones improve grinding?**
I. du Plessis (Multotec Process Equipment, South Africa)

Wednesday April 14th

08.50   *Technical Session 3*
Chairmen: B.I. Pålsson (Luleå University of Technology, Sweden) and R.K. Rajamani (University of Utah, USA)

08.50   **Real-time statistical process control in crushing plants**
M. Evertsson and E. Hulthén (Chalmers University of Technology, Sweden)

09.10   **A comparative study between cone crushers and theoretically optimal crushing sequences**
E. Lee and C.M. Evertsson (Chalmers University of Technology, Sweden)

09.30   **DEM simulation of performance and rock breakage in cone crushers**
J. Quist and M. Evertsson (Chalmers University of Technology, Sweden)

09.50   **Real-time algorithm for cone crusher control with two on-line variables**
E. Hulthén and C.M. Evertsson (Chalmers University of Technology, Sweden)

10.10   **The advantage of half scale to full scale HPGR modelling**
F. Heinicke (Polysius AG, Germany)

10.30   Coffee

11.10   **A preliminary investigation into the feasibility of a novel HPGR-based circuit for hard, weathered ores containing clayish material**
P. Rosario, R. Hall, B. Klein (University of British Columbia, Canada) and M. Grundy (AMEC Americas Ltd, Canada)

11.30   **Comparison of open and closed circuit HPGR application on dry grinding circuit performance**
O. Altun, N.A. Aydogan, N.A. Toprak, H. Dundar and H. Benzer (Hacettepe University, Turkey)

11.50   **Investigation of the breakage of hard and soft components under high compression: HPGR application**
H. Benzer, N.A. Aydoğan and H. Dündar (Hacettepe University, Turkey)

12.10   **Breakage of waste concrete for liberation using an autogenous mill**
Kwan Ho Kim, Hee Chan Cho and Ji Whan Ahn (Seoul National University, South Korea)

12.30   **SAG kWh/t measured using a standard test – 53 mill design projects in 6 years**
J. Starkey (Starkey & Associates Inc., Canada)

12.50   Lunch

14.00   *Technical Session 4*
Chairmen: H. Benzer (Hacettepe University, Turkey)

14.00   **Optimization of the SAG mill circuit at Kinross RPM Brazil**
M.P. Gomes, L. Tavarez Jr. (Kinross' Rio Paracatu Mineração (RPM), Brazil), E.S. Nunes Filho, J. Colacioppo and W. Valery (Metso Process Technology and Innovation, Australia)

14.20   **Monitoring of the operational states of a semi-autogeneous mill**
J.J. Burchell, C. Aldrich, J.P. Barnard (University of Stellenbosch, South Africa) and J.W. de V. Groenewald (Anglo Platinum Management Services, South Africa)

14.40   **Wear and design improvements in discharge cones for large SAG/AG mills**
C. Faulkner (Bradken, Australia)

15.00   **Energy efficient grinding circuits from operators' view point**
Mingwei Gao (JKTech Pty Ltd, Australia) and R. Harvey (Mount Isa Mines, Australia)

15.20   **The development of a dry energy efficient grinding circuit for Anglo American**
W. van Drunick, N. Palm (Anglo Research, South Africa) and C. Gerold (Loesche, Germany)

15.40   **Taking advantage of shapes of rock to reduce comminution energy**
R. Chandramohan, M. Powell and P. Holtham (JKMRC, Australia)

16.00   Coffee

18.30   Coach departs for Conference Dinner at Spier Wine Estate, Stellenbosch

Thursday April 15th

08.30　*Technical Session 5*
　　　　Chairmen**:** W. van Drunick (Anglo Research, South Africa) and G. Davey (Metso Process Technology Support, UK)

08.30　**Interpretation of vibration signal of tumbling mills**
　　　　S.P. Das, D.P. Das, S.K. Behera and B.K. Mishra (Institute of Minerals & Materials Technology, India)

08.50　**Ball-charge optimization of cement mills**
　　　　P. Fleiger and S. Woywadt (Verein Deutscher Zementwerke e.V., Germany)

09.10　**Total primary milling cost reduction by improved liner design**
　　　　J. Dahner (Magotteaux (Pty) Ltd, South Africa) and A. Van den Bosch (Magotteaux SA, Belgium)

09.30　**Milling rate of chosen mineral materials in a ball mill under changing apparatus – process conditions**
　　　　T.P. Olejnik (Lodz Technical University, Poland)

09.50　**Modeling the residence time distribution of a large ball mill as a function of load volume and percent solids**
　　　　A.B. Makokha and M.H. Moys (University of the Witwatersrand, South Africa)

10.10　**Coarse grinding applications using the Metso Vertimill®**
　　　　G. Davey (Metso Process Technology Support, UK)

10.30　Coffee

11.10　**Optimisation of the secondary ball mill using an on-line ball and pulp load sensor – the Sensomag**
　　　　P. Keshav (Anglo Platinum, South Africa), B. de Haas*,* B. Clermont (Magotteaux, Belgium), A. Mainza (University of Cape Town, South Africa) and M. Moys (University of the Witwatersrand, South Africa)

11.30　**Comparison of the overall circuit performance in the cement industry: high compression milling vs ball milling technology**
　　　　N.A. Aydoğan and H. Benzer (Hacettepe University, Turkey)

11.50　**Simulation assisted capacity ımprovement of cement grinding circuit: case study cement plant**
　　　　H. Dundar, H. Benzer, N.A. Aydogan, O. Altun, N.A. Toprak, O. Ozcan, D. Eksi and A. Sargın (Hacettepe University, Turkey)

12.10　**Analysis of a stator earth fault protection system of a grinding mill converter-fed synchronous motor**
　　　　R. Vargas and J. Pontt (Technical University Federico Santa María, Chile)

12.30　**Synchronous electric drives for grinding mills**
　　　　M. Ploc (GE Energy, Canada) and M. Clatworthy (GE Energy, Australia)

12.50　Lunch

14.00　*Technical Session 6*
　　　　Chairmen: A. Mainza (University of Cape Town, South Africa) and J. Favier (DEM Solutions Ltd, UK)

14.00   **Less invasive vibrations measurement for monitoring and surveillance of grinding mills with gearless drives**
J. Pontt, U. Ramos, F. Rojas, W. Valderrama and M. Olivares (Technical University of Santa Maria, Chile)

14.20   **Comparison of wet and dry centrifugal based classification efficiency**
H. Benzer, O. Altun (University of Hacettepe, Turkey) and A. Mainza (University of Cape Town, South Africa)

14.40   **Implementing strategies to improve mill capacity and efficiency through classification by particle size only, with case studies**
N.J. Barkhuysen (Derrick Corporation, South Africa)

15.00   **DEM modelling of liner and lifter wear in grinding mills**
M.S. Powell, N.S. Weerasekara (JKMRC, Australia), S. Cole, R.D. LaRoche and J. Favier (DEM Solutions Ltd, UK)

15.20   **Prediction of mill structure behaviour in a tumbling mill**
P. Jonsén, B.I. Pålsson (Luleå University of Technology, Sweden), K. Tano (LKAB, Sweden) and A. Berggren (Boliden Minerals, Sweden)

15.40   Coffee

16.10   **Understanding fine ore breakage in a laboratory scale ball mill using DEM**
P.W. Cleary (CSIRO Mathematical and Information Sciences, Australia) and R.D. Morrison (JKMRC, Australia)

16.30   **Is fine grinding an appropriate technology for the optimal extraction of refractory gold ores?**
D. Capstick (Deswick Mining Consultants (Pty) Ltd, South Africa)

16.50   **Investigation on the residence time and fine grinding at Float Characteristic Test Rig**
F. Francis, J. Kabuba, E. Muzenda and M. Mollagee (University of Johannesburg, South Africa)

17.10   **The effect of the design of a secondary grinding circuit on platinum flotation from a UG-2 ore**
L. Maharaj, J. Pocock and B.K. Loveday (University of KwaZulu-Natal, South Africa)

Friday April 16th

08.30   *Technical Session 7*
        Chairmen: A. Kwade (Technische Universität Braunschweig, Germany) and J. Pontt
        (Technical University Federico Santa María, Chile)

08.30   **Towards a mechanistic model for slurry transport in tumbling mills**
        I. Govender, G.B. Tupper and A.N. Mainza (University of Cape Town, South Africa)

08.50   **New developments in dry grinding with Jet-mills using air and steam**
        U. Enderle (NETZSCH-Feinmahltechnik GmbH, Germany)

09.10   **Shifting from the norm: coarse grinding in stirred mills**
        K. Barns, G. Anderson, D. Smith and H. De Waal (Xstrata Technology, Australia)

09.30   **Using the IsaMill technology in mainstream grinding applications**
        B. Chaponda, A.N. Mainza (University of Cape Town, South Africa), B. Durant (Anglo
        Platinum, South Africa) and C. Walstra (Xstrata Technology, South Africa)

09.50   **Selection criteria of stirred milling technologies**
        B.R. Knorr (Metso Minerals Industries, Inc., USA)

10.10   **Stress model as basis for optimization and scale-up of bead milling processes**
        A. Kwade (Technische Universität Braunschweig, Germany)

10.30   Coffee

11.10   **Tracking the motion of media particles inside an ISAmill using PEPT**
        A. van der Westhuizen, I. Govender, A. Mainza (University of Cape Town, South Africa) and
        J. Rubenstein (Xstrata Technology, Canada)

11.30   **Fluidized mill media selection considerations**
        M. Gallimore (Metso Mining and Construction Technology, USA)

11.50   **Effect of media size and mechanical properties on milling efficiency and media
        consumption**
        B.Y. Farber (Zircoa Inc., USA), B. Durant and N. Bedesi (Anglo Platinum Corp., South
        Africa)

12.10   **A methodology for characterising in-situ viscosity profiles in tumbling mills**
        N. Mangesana, I. Govender, A.N. Mainza and J.-P. Franzidis (University of Cape Town,
        South Africa)

12.30   **Grinding circuit optimization by model predictive control**
        T. Marx (ABB, Switzerland)

12.50   Lunch

14.00   *Technical Session 8*
        Chairman: M.S. Powell (JKMRC, Australia)

14.00   **Characterising porosity of multi-component mixtures in rotary mills**
        K Sichalwe, I Govender and A.N. Mainza (University of Cape Town, South Africa)

14.20   **Validation of a DEM-CFD model for simulating particle-slurry flow in a stirred mill**
        C.T. Jayasundara, R.Y. Yang, A.B. Yu (University of New South Wales, Australia), I.
        Govender, A. Mainza, A. Westhuizen (University of Cape Town, South Africa) and J.
        Rubenstein (Xstrata Technology, Canada)

14.40   **An investigation of fluid flow through the dynamic porous bulk of a tumbling mill using SPH, DEM and Positron Emission Particle Tracking**
I. Govender, A.N. Mainza (University of Cape Town, South Africa) and P.W. Cleary (CSIRO Div. of Mathematics and Information Sciences, Australia)

15.00   **Predicting patterns of slurry flow in a 3D pilot SAG mill**
P.W. Cleary, P.J. Owen (CSIRO Mathematics, Informatics and Statistics, Australia) and R.D. Morrison (JKMRC, Australia)

15.20   **Predicting charge and slurry behaviour in a full scale Isamill**
P.W. Cleary, G. Pereira and M.D. Sinnott (CSIRO Mathematical and Information Sciences, Australia)

15.40   **Enlightened circuit design is essential to the take-up of new equipment**
M. Powell (JKMRC, Australia)

16.00   Coffee and Wine