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IME 2011 CONFERENCE PROGRAM



Innovations in Mining Engineering

Aug. 30 - Sept. 1, 2011

Havener Center, Missouri S&T

*Research Advances and Technological Innovations
for the Mining Industry of the Future.*

Themes

Novel Mining Methods
Mine Production Engineering
Ground Control and Safety Engineering
Drilling, Blasting and Demolition

Sustainable Development
Mine Economics and Financing
Mineral, Materials and Coal Processing



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Conference Chair



Chris C. Curfman
President
Caterpillar Global Mining

Keynote Speakers



Robert Vogel
President
Vulcan Materials-Midwest



Michael DeCola
CEO
Mississippi Lime Company



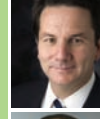
Bruce A. Neil
President and CEO
The Doe Run Company
(photo by Bloomberg)



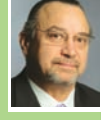
John W. Eaves
President and COO
Arch Coal, Inc.



Bill Kennedy
President and CEO
Kennedy Metal Products



Stephen J. Owens
Interim President
University of Missouri System



Mark Savit
Partner
Patton Boggs LLP

Meeting the Technological Innovations and Global Talent Challenges of the Future Mining Industry:



Samuel Frimpong
Professor and Chair
Mining & Nuclear Eng.
Missouri S&T



Paul A. Lang (MinE'83)
Senior Vice President
Operations
Arch Coal, Inc.

On behalf of Missouri S&T and the Development Board, we would like to welcome you to the 2011 Innovations in Mining Engineering Conference (IME 2011). The IME 2011 Conference brings together top industry executives and professionals, and faculty and students to discuss relevant issues on the theme, “Innovations in Mining Engineering – Advancing and Deploying Technologies for Safer and Productive Operations.”

Throughout its history, the mining industry has continuously met its defining challenges and responded to the needs of the global community. The industry continues to produce resources for technological innovations, industrial growth, knowledge and frontier advances, and the development of societies for the survival and comfort of humanity.

Today, more than ever, the industry faces tough technological, environmental, safety and health, workforce readiness and sustainable development challenges. The workforce readiness challenge has become more critical given the erosion of the capacity of global universities to educate mining engineers and other resource engineers and scientists.

Chris Curfman, President of CAT Global Mining and the Conference General Chair, will open the conference with a keynote address entitled, “Mining Safely! Mining More! Mining Right!” The conference will deliver on two key issues – technological innovations and the global talent for the mining industry of the future.

Enjoy the conference and please communicate to the Technical Committee your thoughts for future conferences.

Dr. Samuel Frimpong and Paul A. Lang,
Co-Chairs, Conference Technical Committee

Conference Schedule pp. 6-7

Technical Committee

- | | |
|--|---|
| Genevieve Bodnar
Peabody Energy | Kurt Oakes
Olson Explosives |
| Paul Conrad
Montana Tech | Matthew Oomen
Marston A Golder Associates Company |
| Grzegorz Galecki
Missouri S&T | Michael Scherr
Cliffs Natural Resources |
| Jim Humphrey
CAT Global Mining | Neil Stanton
Orica, Inc. |
| Vladislav Kecojevic
West Virginia University | Greg Sutton
The Doe Run Company |
| Michael Nelson
University of Utah | |

Executive Forum Speakers

- | | |
|---|---|
| Forum I | Forum II |
| Jeffrey A. Roschyk
Vice President
P&H Mining Company | Andy Slentz
Sr. Vice President
Peabody Energy |
| Bryan Galli
President – International Coal Sales
Peabody Energy | Leigh Freeman
General Manager
Downing Teal, Inc. |
| Nick Auden
Vice President Joint Ventures & Indirect Bus.
Orica, Inc. | Samuel Frimpong
Professor and Chair
Missouri S&T |
| Mark Bartlett
Manager for Technologies
Freeport McMoran | Chris Gibbs
Sr. Director, Org. Dev. & Ag Head, Global HR
Barrick Gold North America |
| Cory Cook
Vice President
Immersive Technologies | Richard Marston
President and Principal Consultant
Marston A Golder Associates Company |



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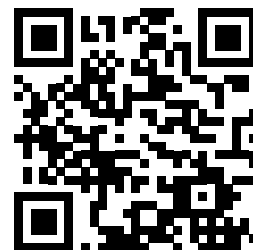
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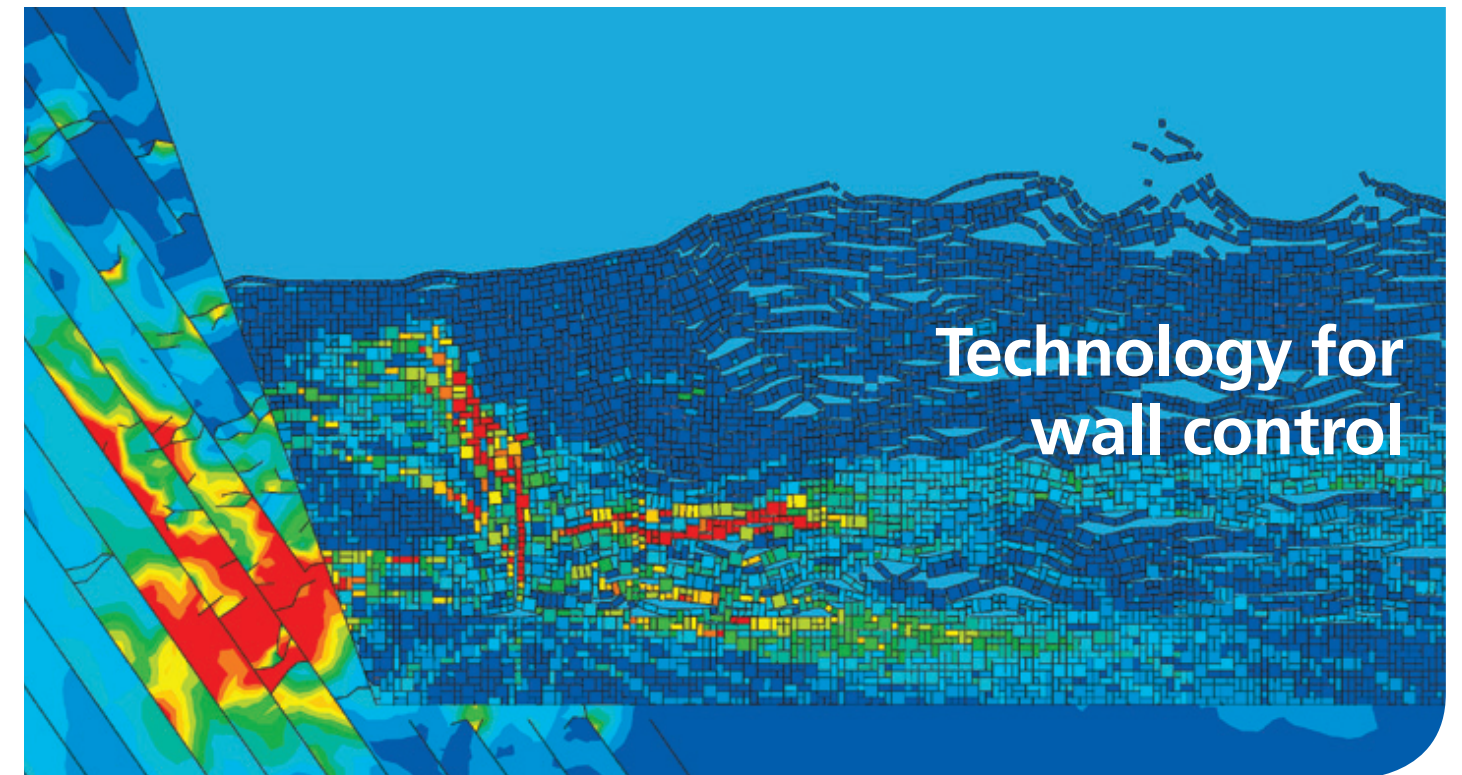
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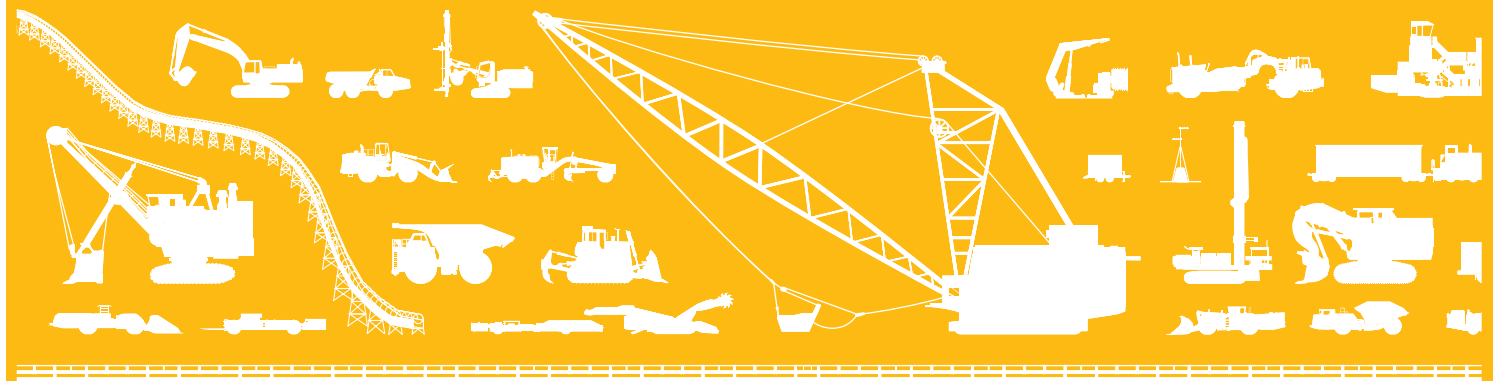
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INNOVATIONS IN MINING ENGINEERING 2011

Monday, August 29, 2011

Time	Program/Location
4:00 – 5:30 PM	REGISTRATION DESK OPEN <i>1st Floor Atrium</i>
5:00 – 7:00 PM	DOE RUN STUDENT RECEPTION <i>1st Floor Atrium</i>

Tuesday, August 30, 2011

Time	Program/Location	Speaker/Presenter
8:00 AM – 4:00 PM	REGISTRATION DESK OPEN <i>Miner Lounge</i>	
8:00 – 8:45 AM	CONTINENTAL BREAKFAST <i>St. Pats C</i>	
9:00 – 9:45 AM	WELCOME ADDRESS <i>St. Pats A/B</i>	Chris C. Curfman , (<i>President, Caterpillar Global Mining, and IME 2011 General Conference Chair</i>) <i>Mining Safely! Mining More! Mining Right!</i>
9:45 – 10:00 AM	BREAK <i>Miner Lounge</i>	
10:00 AM – 12:30 PM	EXECUTIVE FORUM I – Innovative Technologies for Tomorrow’s Mining Industry <i>St. Pats A/B</i>	CHAIR: Paul A. Lang , (<i>Senior Vice President, Arch Coal, Inc.</i>) SPEAKERS: Jeffrey A. Roschyk , (<i>Vice President, P&H Mining Company</i>), <i>Integration of Technological Advancements Focused on Mining Customer Needs</i> ; Bryan Galli , (<i>President, International Coal Sales, Peabody</i>), <i>Remote Sensing Capabilities for Safe Operation of Underground Continuous Miners</i> ; Nick Auden , (<i>Vice President Joint Ventures & Indirect Business, Orica USA Inc.</i>), <i>Innovations in the Explosive Industry - Transformation for the Future</i> ; Mark Bartlett , (<i>Manager for Technologies, Freeport McMoran</i>), <i>Real-Time Fatigue Monitor System for Haul Truck Operators</i> ; Cory Cook , (<i>Vice President, Immersive Technologies</i>), <i>Addressing Risk: Lead/Lag Indicators and Technology’s Role in Predictive Modeling</i>
12:30 – 1:45 PM	LUNCH/KEYNOTE <i>St. Pats C</i>	Robert Vogel , (<i>President of Vulcan Materials-Midwest</i>), <i>Advance Blasting Control Technologies for Improved Productivity and Safety in Suburban Environments</i>
2:00 – 5:00 PM	CONCURRENT SESSIONS 1. NOVEL MINING METHODS I <i>Carver/Turner</i> 2. MINE PRODUCTION ENGINEERING I <i>St. Pats A/B</i>	1. CO-CHAIRS: Gregory F. Sutton , (<i>General Mine Manager, Doe Run</i>); Genevieve Bodnar , (<i>Geologic Systems Specialist, Peabody</i>) SPEAKERS: A. Hawks (<i>Brierley</i>), <i>Distance Based Doctorates: Mechanisms for Sponsored Research</i> C. McNail (<i>Doe Run</i>), <i>Challenges in Developing the RCWF Deposit</i> ; R. Brown (<i>Frontier Kemper</i>), <i>North American Record - 22’ Diameter Raise Shaft Completed in Alabama</i> ; R. Brown (<i>Frontier Kemper</i>), <i>Blind Bore Shafts Completed in Illinois and Indiana</i> ; T. Feller (<i>Cliffs</i>), <i>Application of Response Surface Methods to Evaluation of Deterministic Models of Longwall Mining Systems</i> 2. CO-CHAIRS: Mathew P. Oommen , (<i>Vice President and Senior Mining Consultant, Marston/Golder</i>); Kadri Dagdalen , (<i>Professor and Head, Mining Engineering, CSM</i>) SPEAKERS: K. Awuah-Offei , B. Osei (<i>Missouri S&T</i>) and H. Askari-Nasab (<i>U. Alberta</i>), <i>Improving Truck-Shovel Diesel Fuel Consumption Through Discrete Event Modeling</i> ; M.A. Raza , S. Frimpong and O.F. Brown (<i>Missouri S&T</i>), <i>Calibration of Payload Management System for Haul Trucks</i> ; S. Bell (<i>Arch</i>), <i>Continuous Improvement Efforts in Dragline Productivity at the Black Thunder Mine</i> ; E. Adadzi and S. Frimpong (<i>Missouri S&T</i>), <i>Mechanics of Dragline Productivity Improvement in Multi-Seam Coal Formation</i> ; T. Barnes (<i>P&H</i>), <i>Fundamental Safety and Maintenance improvements of Electric Mining Shovels</i>
BREAK FROM 3:30 – 3:45 PM		

Wednesday, August 31, 2011

Time	Program/Location	Speaker/Presenter
8:00 AM – 12 NOON	REGISTRATION DESK OPEN <i>Miner Lounge</i>	
8:00 – 8:45 AM	CONTINENTAL BREAKFAST <i>St. Pats C</i>	
9:00 – 9:45 AM	KEYNOTE SPEAKER <i>St. Pats A/B</i>	Michael A. DeCola , (<i>CEO, Mississippi Lime Company</i>), <i>Planning for the Future at Mississippi Lime Company</i>
9:45 – 10:00 AM	BREAK <i>Miner Lounge</i>	
10:00 AM – 12:30 PM	CONCURRENT SESSIONS 1. NOVEL MINING METHODS II <i>Carver/Turner</i> 2. MINE PRODUCTION ENGINEERING II <i>St. Pats A/B</i>	1. CO-CHAIRS: Grzegorz Galecki , <i>Associate Professor, Missouri S&T</i> ; Ted Minnes , <i>Senior Mining Consultant, Marston/Golder</i> SPEAKERS: M. Kuligowski (<i>Peabody</i>), <i>Modeling Made Easy</i> ; P. Bethel (<i>Taggart/Arch</i>) and M. Ferguson (<i>Taggart</i>), <i>Future Challenges for Coal Preparation Worldwide</i> ; G. Galecki , G. Akar , S. Sen and Y. Li (<i>Missouri S&T</i>), <i>Enhanced Cleaning of the Coal Feedstock for Power Generation</i> ; G. Sutton (<i>Doe Run</i>), <i>Continuous Improvement at Doe Run’s Viburnum Trend Mines</i> ; A. Kresler (<i>Doe Run</i>), <i>Mine Fire at #29 Mine – Successful Rescue</i> 2. CO-CHAIRS: James D. Humphrey , (<i>Manager – CAT Command for Haulage-Deploy Project, CAT Global Mining</i>); Michael J. Scherr , (<i>Technical Assistant to General Manager, Pinnacle Mining Co., Cliffs Natural Resources</i>) SPEAKERS: B. Wright (<i>Mississippi Lime Company</i>), <i>The Use of Multivariable Testing (MVT®) In Process Improvement at Mississippi Lime Co.</i> ; J. Humphrey (<i>CAT</i>), <i>Implementation of Autonomous Haulage Systems</i> ; S. Agarwal (<i>Missouri S&T</i>) and R. Ganguli (<i>U. Alaska</i>), <i>Development of an Automated Neural Network</i> ; J. Sammut (<i>Komatsu</i>), <i>Excavators 2020 – Hydraulic Excavators in Mining, Where From, Where To?</i> ; S. Frimpong , O. F. Brown , A. Raza , and E. Adadzi (<i>Missouri S&T</i>), <i>Advances in Heavy Mining Machinery Research</i>

CONFERENCE SCHEDULE

Wednesday, August 31, 2011 (continued)

Time	Program/Location	Speaker/Presenter
12:45 – 1:45 PM	LUNCH/KEYNOTE <i>St. Pats C</i>	A. Bruce Neil , (<i>President and CEO, The Doe Run Company</i>), <i>Sustainable Mining & Metal Production: Challenges and Opportunities for Innovation</i>
2:00 – 5:00 PM	CONCURRENT SESSIONS 1. GROUND CONTROL AND SAFETY ENGINEERING <i>St. Pats A/B</i> BREAK FROM 3:30 – 3:45 PM <i>BREAK-Miner Lounge</i> 2. DRILLING, BLASTING AND DEMOLITION <i>Carver/Turner</i> 3. SUSTAINABLE DEVELOPMENT <i>Missouri/Ozark</i>	1. CO-CHAIRS: Michael A. Nelson , (<i>Associate Professor and Head, Mining Engineering, University of Utah</i>); Maochen Ge , (<i>Associate Professor, Mining and Nuclear Engineering, Missouri S&T</i>) SPEAKERS: J. Pinkley , (<i>DSI Underground Systems</i>), <i>DSI Polymer Rock Dust Enhancing Safety and Productivity in Underground Coal</i> ; D. Pesch (<i>Arch</i>), <i>Workplace Safety: Promoting a Culture of Commitment</i> ; A.D.S. Gillies (<i>Missouri S&T</i>), <i>US & Australian Coal Mine Ventilation Practices: Tech Transfer and Education</i> ; T.E. Boyce (<i>U. Utah</i>), <i>Psychology of Safety Leadership</i> ; R. Archibald (<i>Behre Dolbear</i>), <i>Embracing Safety Culture at All Levels of a Mining Operation</i> ; M. Ge and A. Bagherieh (<i>Missouri S&T</i>) <i>University Research Improves Mine Safety and Productivity</i> ; W. Robertson (<i>Barrick</i>), <i>Stress Modeling of the Interaction between Open Pit and Underground Operations at Barrick Gold NA</i> 2. CO-CHAIRS: Kurt B. Oakes , (<i>General Manager, Olson Explosives</i>); Vladislav Kecojevic , (<i>Associate Professor, West Virginia University</i>) SPEAKERS: R. McClure (<i>RAM Explosive</i>), A. Gaich and M. Postch (<i>3G Software</i>), P. Moser (<i>Leoben, Austria</i>) and P. Schubert (<i>Graz Univ of Tech</i>), <i>How 3D Images Support Bench Face Profiling, Blast Planning and Rock Mass Characterization</i> ; N. Lee (<i>Nelson</i>) and B. Lusk (<i>U. Kentucky</i>), <i>100% Sensitized Emulsion: Will it Really “Freeze” the Muck-Pile Relative to ANFO at the Given Drilling And Blasting Cost?</i> ; L. Bookout and J. Baird (<i>Missouri S&T</i>), <i>Impact Effects of Explosively Formed Projectiles on Normal Strength Concrete</i> ; P. Mulligan and J. Baird (<i>Missouri S&T</i>), <i>The Effects of the Flyer Plate’s Radius of Curvature on the Performance of an Explosively Formed Projectile</i> ; K. Oakes (<i>Olson</i>), J. Gilliam and A. Lewis (<i>Linwood</i>), <i>Design and Construction of the Northwest Extension Ventilation Raise at Linwood Mining & Minerals - How “Mother Nature” Can Affect Her Will</i> 3. CO-CHAIRS: Paul W. Conrad , (<i>Associate Professor, Montana Tech</i>); Kwame Awuah-Offei , (<i>Assistant Professor, Missouri S&T</i>) SPEAKERS: P. Conrad (<i>Montana Tech</i>), <i>Sustainable Development in Mining</i> ; M. Haddock (<i>Golder & Associates</i>), <i>New Modeling Tool for Development of Tailings Management Plans</i> ; E. Ben-Awuah (<i>U. Alberta</i>), <i>Waste Disposal Planning For Oil Sands Mining Using Goal Programming</i> ; E. Robeck (<i>Peabody</i>), <i>Achieving Global Rehabilitation Success – Peabody Energy’s Experience in Mongolia</i> ; J. Luebbing (<i>Missouri DNR</i>), <i>Mining and Reclamation in Missouri</i>
6:30 – 9:30 PM	DINNER/KEYNOTE Cash Bar (opens at 6:30 PM) Dinner (starts at 7 PM) <i>St. Pats C</i>	John Eaves , (<i>President and COO, Arch Coal</i>) <i>The New Arch Coal in a New World</i>

Thursday, Sept. 1, 2011

Time	Program/Location	Speaker/Presenter
8:00 – 8:45 AM	CONTINENTAL BREAKFAST <i>St. Pats C</i>	
9:00 – 9:45 AM	KEYNOTE SPEAKER <i>St. Pats A/B</i>	Bill Kennedy , (<i>President & CEO, Kennedy Metal Products</i>) <i>Novel Technologies for Safe Underground Operations</i>
9:45 – 10:00 AM	BREAK <i>Miner Lounge</i>	
10:00 AM – 12:30 PM	EXECUTIVE FORUM II – Global Talent for Tomorrow’s Mining Industry <i>St. Pats A/B</i>	Chair: Barbara Shepard , (<i>Vice President, The Doe Run Company</i>) SPEAKERS: Andy Slentz , (<i>Senior Vice President, Peabody</i>), <i>Dynamic Global Landscape for Talent in the Natural Resources Industry</i> ; Leigh Freeman , (<i>General Manager, Downing Teal, Inc.</i>), <i>Global Demand for Qualified Professionals for the Mining Industry</i> ; Samuel Frimpong , (<i>Professor and Chair, Missouri S&T</i>), <i>Educating the Next Generation of Leaders for the Mining Industry: Challenges and Opportunities</i> ; Chris Gibbs , (<i>Sr. Director, Org Develop & Ag Head, Global HR, Barrick</i>), <i>Key Ingredients for Training Professionals for the Metals Industry</i> ; Richard Marston , (<i>President and Principal Mining Consultant, A Golder Associates Company</i>), <i>Meeting the Demand for Global Mining Consulting Services</i>
12:45 – 1:45 PM	LUNCH/KEYNOTE <i>St. Pats C</i>	REMARKS: Steve Owens , (<i>Interim President, UM System</i>), <i>The Future of the UM System</i> ; KEYNOTE: Mark Savit , (<i>Partner, Patton Boggs LLP</i>), <i>New Approaches to MSHA Compliance Management</i>
1:45 PM – 2:00 PM	CLOSING REMARKS/ CONFERENCE ADJOURNS <i>St. Pats C</i>	Samuel Frimpong , (<i>Professor and Chair, Missouri S&T</i>)

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