

TECHNICAL PROGRAM

**MONDAY, OCTOBER 31
SUMMIT ROOM**

8:30-10:30 PLENARY SESSION

**Chair: Professor Raimondo Ciccu
University of Cagliari, Italy**

Introduction: Dr. Raj K. Singhal

**Opening Remarks: Ms Martina Shehata
Vice President, Krupp Canada Inc.**

**Speakers: Paul Clark, Canada
Professor Uday Kumar, Sweden
Professor Michael Karmis, United States
Dr. Andrew Robertson, Canada**

10:30-10:50 Coffee Break

**MONDAY, OCTOBER 31
SUMMIT ROOM**

**11:00-12:30 Session 1 – Mine Planning and Design
Chair: Alan Fair, Syncrude Canada**

1. Use of Production and Non-Traditional Data for Mine Planning and Design
Larry W. Berry, Mintec Inc. USA

2. Infrastructure for Integrated Data Environments and Analysis (IIDEA) for Mining and Processing Systems
Sean Dessureault, University of Arizona, Vladislav Kecojevic, Pennsylvania State University, Antonio Nieto,
Virginia Polytechnic Inst and State University, Rajive Ganguli, University of Alaska Fairbanks, USA

3. Scheduling of Open Pit Mines with Microsoft Excel
Raymond Gordon Thomas Garnsey, Garnsey Mining Consultants Pty Ltd, Australia

4. Integrated Mine Engineering solution: Implementation of CAMP at Raglan, Falconbridge Ltd –
Bruno Lemelin, Jean-Marie Clouet, Bernie Smith, Cliff Dusick, Falconbridge Ltd., Canada

**12:45-13:50 Luncheon
Luncheon Speaker: Peter Lighthall
Vice President, AMEC Earth and Environmental
Introduced by: Professor Sukumar Bandopadhyay (University of Alaska)**

14:00-15:30 Session 2 – Mine Equipment Selection and Utilization
Chairs: Dr. Vladislav Keckojevic, United States
Abdullah Arik, United States

1. Sublevel Stoping at a large underground quarry: the improvement of the development and exploitation design
 Marilena Cardu, Renato Mancini, Vincenzo Piovano and Luca Zammarian –, DITAG, Politecnico di Torino, Italy
2. Relationship between the geological and working parameters in high productivity longwalls in underground competitive coal mining of very thick seams
 Javier Toraño, R.Rodríguez, I.Diego, J.M.Rivas, A.Pelegry, University of Oviedo, School of Mines, Spain
3. Developments in Underground Mining
 Per Nicolai Martens, Ludger Rattmann, Thomas Straeten, Inst of Mining Engineering, RWTH Aachen, Germany
4. Optimizing Continuous Miner Coal Production Systems Based on Production and Production Cost
 Yoginder Chugh, A Patwardhan, and A Moharana, Southern Illinois University, USA

15:30-15:50 Coffee Break

16:00-17:30 Session 3 – Computer Applications in Mining Education
Chair: Matt Meyer, Canada

1. Computer Applications in Mining Education - Current Practices at UBC
 Mario Morin, University of British Columbia, Canada
2. A Lifelong Learning Approach to Training and Development in Mining
 Malcolm Scoble, University of British Columbia, Canada
3. Experiences with Online Continuing Education for Mining
 Simon Houlding, InfoMine Inc, Canada

17:30-19:00 What is the Role of Continuing Education on the Internet in Addressing the HR Crisis in Mining?
Chair: Malcolm Scoble (University of British Columbia)

19:00-21:00 Reception

MONDAY, OCTOBER 31
ASSINIBOINE ROOM

11:00-12:30 Session 4 – Mine Equipment Selection and Utilization
Chair: Professor Morteza Osanloo, Iran

1. The future of haul truck design - LIEBHERR
Dion Domaschenz, Liebherr Mining Equipment Co., USA
2. Larger Shovels - The Reality
Andrew Williams and Lee Paterson, P&H Mining Equipment, United States
3. An OEM System Approach to Excavator Monitoring
Jack Rupert, Bucyrus Canada Limited, Canada

12:45-13:50 Luncheon
Luncheon Speaker: Peter Lighthall
Vice President, AMEC Earth and Environmental
Introduced by: Professor Sukumar Bandopadhyay

14:00-15:30 Session 5 – Mine Equipment Selection and Utilization
Chair: Professor S. Frimpong, United States

1. Ways of increasing the output of bucket chain excavators by using direct drives
C. Drebenstedt and S. Paessler, Germany
2. Maximizing Production Efficiency Through Downtime and Production Reporting Solution
Mike Brown, Matrikon Inc., Canada
3. Off-road truck body optimization
M.D. Kaizer, N. Barbieri, and R. Barbieri, PETROBRAS S.A., Brazil

15:30-15:50 Coffee Break

16:00-17:30 Session 6 – Mine Equipment Selection and Utilization
Chair: Professor Kikuo Matsui, Japan

1. Oil Sand Terrain Bearing Capacity for the GAP System under Dynamic Loading
Samuel Frimpong, Ying Li, University of Missouri-Rolla, United States
2. Destination Scheduling With Mixed Truck Fleets At Oceana Gold's Macraes Gold Mine
Pieter Doelman and Alun Phillips, Oceana Gold Limited, New Zealand
3. Cyber Security in Mining
Donovan Tindill, Matrikon Inc., Canada

19:00-21:00 Reception

MONDAY, OCTOBER 31
CASTLE ROOM

11:00-12:30 Session 7 – Rock Mechanics and Geotechnical Applications
Chairs: Dr. Marilena Cardu, Italy
Dr. B.K. Pal, India

1. Use of Surface Height Measurements for the Evaluation of Undermined Firm Roof Failure
Eva Jirankova and Vladimir Petros, The Technical University, Czech Republic
2. The Stability of Footwall and Dumpwall in Open Cut Coal Mines
Takeshi Ueda, Kikuo Matsui, Hideki Shimada, Mitsui Matsushima Co., Ltd., Japan
3. Design of Drilling and Blasting Patterns: A Case Study on Rock Excavation Project in Turkey
Vladislav Kecojevic, M. Can Celiksirt, Vural Erkan, Pennsylvania State University, USA
4. Risk Analysis of Tailing Dams Collapse
Battista Grosso, Pier Paolo Manca, Cagliari University, Italy

12:45-13:50 Luncheon
Luncheon Speaker: Peter Lighthall
Vice President, AMEC Earth and Environmental
Introduced by: Professor Sukumar Bandopadhyay

14:00-15:30 Session 8 – Rock Mechanics and Geotechnical Applications
Chair: Dr. Dragan Komljenovic, Canada

1. Improvement of Tool Performance in Mechanical Excavation of Rocks
A. Bortolussi, R. Ciccu, B. Grosso, C. Loddo, J. Vasek, Cagliari University, Italy
2. Influence of Intermediate Principal Stress on Failure State of Rock Mass under Three Dimensional Load Conditions
Gary Li, S. Vongpaisal, R. Pakalnis and T. Brady, CANMET, Canada
3. Cavity Monitoring System and Stope Analysis
John Lupton, Optech, Canada

15:30-15:50 Coffee Break

16:00-17:30 Session 9 - Rock Mechanics and Geotechnical Applications
Chairs: Professor Masuyuki Ujihira, Japan
Wes Funk, Canada

1. Control of Slaking Behavior when Injection of Flyash Cement into Slake-prone Rock
Hideki Shimada, Imam A. Sadisun, Masatomo Ichinose, Kikuo Matsui, Kyoko Ikematsu, Yasuhiro Yoshida, Kyushu University, Japan
2. Energy Characteristics of Rocks under Dynamic Loading
Vladimir Petros and Petr Michalík, VSB-Technical University of Ostrava, Czech Republic

3. Fuzzy Relations Among Mechanical Properties of Rocks
C. Atilla Öztürk, Erkin Nasuf, Istanbul Technical University

4. A Model of Fault Shear Rupture Validated Using Acoustic Emission Measurements
Battista Grosso, Pier Paolo Manca, Cagliari University, Italy

**17:30 – 19:00 – What is the Role of Continuing Education on the Internet in
Addressing the HR Crisis in Mining?
Chair: Professor Malcolm Scoble, Canada**

19:00-21:00 Reception

4. Geotechnical Problems Encountered by Tunnel Boring Machines Operating in Hard Rock
Chris Laughton, Fermi National Accelerator Lab, USA

15:30-15:50 Coffee Break

16:00-17:30 Session 13 – Mine Rehabilitation/Tailings/Environmental Issues
Chair: Professor Lindolfo Soares, Brazil

1. Visibility of Opencast Mining and Impact Perception

Giorgio Massacci, Valentina Dentoni, and Carla Asquer, DIGITA- University of Cagliari, Italy

2. The long-term sustainability of revitalization of post- mining landscape in the Czech Republic

Emile Pecharova, Martin Hais, and Ivan Svoboda, University of South Bohemia, Czech Republic

3. Field Monitoring of Reclamation Treatment Success in the Helena National Forest, Montana

Richard McNearney, Montana Tech, USA

19:00

Banquet

Speaker: Bill Fleming

Vice President, Operations - Elk Valley Coal Corporation

Introduced by: Dr. Raj K. Singhal

TUESDAY, NOVEMBER 1
ASSINIBOINE ROOM

8:30-10:00 Session 14 – Mining Equipment Selection and Utilization
Chairs: Professor Vladimir Kebo, Czech Republic
Dr. Robert Hall, Canada

1. Performance Monitoring of Electric Shovels to Assess Diggability of Oil Sand
Sibabrata Patnayak and Dwayne Tannant, University of Alberta, Canada
2. Can David compete with Goliath? - A question of shearer loader cutting methods
Ulrich Lange, Karl Nienhaus, Arne Kristoffer Bayer, RWTH Aachen University, Germany
3. Two software tools to assist machine maintenance
Greg Yuriy and Nick Vayenas, LUMAL, Canada

10:00-10:20 Coffee Break

10:30-12:00 Session 15 – Mine Equipment Selection and Utilization
Chairs: Professor Bibhu Mohanty, Canada
Dr. Eugene Wusaty, Canada

1. Experimental research on the "Geo-tubes" technology
Marilena Cardu and Otello Del Greco, DITAG, Politecnico di Torino, Italy
2. Simulation of a continuous lignite excavation system
Theodore Michalakopoulos, S.E. Arvaniti, G.N. Panagiotou, National Tech University of Athens, Greece
3. Development of a tire-changing handler for a large scale dump truck
Hiroshi Shimauchi and Masuyuki Ujihira, Hokkaido University, Japan

12:15-13:45 Luncheon

14:00-15:30 Session 16 – Mine Design and Computer Simulation
Chairs: Dr. Sean Dessureault, United States
Professor Nick Vayenas, Canada

1. Development of Simple Production Modeling Software for
Continuous Miner Production Systems
Yoginder Chugh, A. Moharana, and A. Patwardhan, Southern Illinois University, Carbondale, USA
2. Distributed Intelligence and Integrated Networking: Cost Efficient Ways Towards Mine Process
Optimization
Christoph Mueller, Embigence GmbH, Germany
3. Mining Production Systems Modeling
Vladimir Strakos and Vladimir Kebo, Technical University of Ostrava, Czech Republic
4. Use of FEM, Fuzzy Logic and Virtual Reality in the underground activities. Application to the Longwall
Mining Works
Javier Toraño, R.Rodríguez, I.Diego, J.M.Rivas, A.Pelegry, University of Oviedo, Spain

15:30-15:50 Coffee Break

16:00-17:30 Session 17 – Mine Design and Computer Simulation
Chair: Professor Carsten Drebenstedt, Germany

1. IT-Controlled Mining Processes at RWE Power Inc., Germany
Ralf Hempel, RWE Power Inc., Germany

2. Advancement of 2D and 3D Electrical Resistivity Techniques for Underground Applications in a Potash Mine
John Unrau, Michael Maxwell, Rob Eso, Doug Oldenburg, and Lin-Ping Song, Mosaic Potash, Canada

3. Modelling open pit dynamics using Monte Carlo simulation
Hooman Askari-Nasab and Josef Szymanski, Center for Advanced Minerals & Energy Research, Canada

19:00 Banquet
Speaker: Bill Fleming
Vice President, Operations - Elk Valley Coal Corporation
Introduced by: Dr. Raj K. Singhal

TUESDAY, NOVEMBER 1
CASTLE ROOM

8:30-10:00 Session 18 – Rock Mechanics and Geotechnical Applications
Chairs: Professor E. De Souza, Canada
Dr. Ernest Baafi, Australia

1. New developments in the analysis of surface mine slopes
Doug Stead, Simon Fraser University, Erik Eberhardt, University of British Columbia, Ming Yan, Simon Fraser University, Canada, John Coggan, University of Exeter, UK
2. DEM Simulation of Collapse in Cutting of Slopes
Youhei Kawamura, Ken Ito, Tatsuo Sakakibara, Masayuki Ujihira, Nobuharu Aoshima, University of Tsukuba, Japan
3. Geoinformation Technologies in Designing and Planning at Open Casts
D.M. Mukanov, B.Zh. Bekmurzayev, Natl. Centre on Complex Processing of Mineral Raw Materials of the Republic of Kazakhstan, Kazakhstan
4. Treatment of wet nickel ore embankment dump point failure
Irwandy Arif, Slamet Prabudi, David Nolan, Riza Rivadino, Harry Asmar, Kelly Bindle, Agus Superiadi, Institut Teknologi Bandung, Indonesia

10:00-10:20 Coffee Break

10:30-12:00 Session 19 – Rock Mechanics and Geotechnical Applications
Chair: Professor Giorgio Massacci, Italy

1. Mining Block Life-Time Prediction Methods by Roof-to-Floor Convergence
Jyri-Rivaldo Pastarus, Tallinn University of Technology, Department of Mining, Estonia
2. Spectral Analysis Techniques Applied to Blasting Vibration
Gülsev Uyar Aldas, Ankara University, Faculty of Engineering, Turkey
3. On the Application of Heat Integration in Oil Sands
A.I.A. Salama, CANMET, Canada

12:15-13:45 Luncheon

14:00-15:30 Session 20 – Rock Mechanics and Geotechnical Applications
Chair: Dr. John Unrau, Canada

1. COMDRAG - A dragline simulator for strip mines
Ernest Baafi and Hamish Kerr, University of Wollongong, Australia
2. Study on the Improvement of the Credibility of Rockfall Simulation-Direct Measurement of Acceleration Applied to Rockfalls
Satoshi Yamachika, Youhei Kawamura, Masuyuki Ujihira and Nobuharu Aoshima, University of Tsukuba, Japan
3. Rock properties assessing when boom tunnelling machines are to be used
Jaroslav Vasek, Institute of Geonics, Czech Republic

15:30-16:00 Coffee Break

16:00-17:30 Session 21 – Rock Mechanics and Geotechnical Applications
Chairs: Professor Roger Thompson, South Africa
Professor Irwandy Arif, Indonesia

1. The Engineering Performance of Glass Based Binders in Mine Backfill
E. De Souza and J. F. Archibald
Department of Mining Engineering, Queen's University, Kingston, Ontario

2. Natural stone diagnosis with the means of non-destructive tests: case studies
Paola Marini, Rossana Bellopede, Claudio De Regibus, Lucia Manfredotti, Politecnico di Torino, Italy

3. Study of Improving the Ultrasonic Measurement System to Detect Penetration of Boulders Using the Cepstrum Analysis
Youhei Kawamura, Yu Ito, Mamoru Tsurushima, Koichi Mizutani, Masuyuki Ujihira, Senro Kuraoka, Nobuharu Aoshima, University of Tsukuba, Japan

4. An Application of Regression Model for Evaluation of Blast Vibration in an Opencast Coal Mine - a Case Analysis
K.C. Brahma, B.K.Pal, and C. Das, India

19:00 Banquet
Speaker: Bill Fleming
Vice President, Operations - Elk Valley Coal Corporation
Introduced by: Dr. Raj K. Singhal

WEDNESDAY, NOVEMBER 2
SUMMIT ROOM

8:30-10:00 Session 22 – Mine Rehabilitation/Tailings/Environmental Issues
Chair: Dr. Arun Basu, Canada

1. Planning of Sustainable Land Rehabilitation
Candra Nugraha and Kikuo Matsui, Japan
2. Demolition and rubble recycling as a new source of building materials
Giovanni Badino, Giovanni Andrea Blengini, Katia Zavaglia, DITAG, Politecnico di Torino, Italy
3. Closure of Uranium Mines in the Czech Republic
Bedrich Michalek, Arnost Grmela, Antonin Hajek, DIAMO State Enterprise, Czech Republic

10:00-10:20 Coffee Break

10:30-12:00 Session 23 - Mine Rehabilitation/Tailings/Environmental Issues
Chair: Professor Branko Salopek, Croatia

1. Closure of a Mining Operation in the Aspect of a Potential to Solve Ecological Problems
Eugeniusz J. Sobczyk, Polish Academy of Sciences, MaEERI, Lech Mielniczuk, Coal Mine "Piast,"
Piotr Saługa, Polish Academy of Sciences, MaEERI, Poland
2. The economic and technical aspects of mine closure in Polish conditions
Jerzy Kicki, Jacek Jarosz, and Artur Dyczko, Polish Academy of Sciences, MaEERI, Poland
3. Social License to Operate Mines: Issues of Situational Analysis and Process
Jacqueline L. Nelsen and Malcolm Scoble, University of British Columbia, Canada

12:15-13:45 Luncheon
Luncheon Speaker: Dr. Vera Muzgina
Introduced by Professor R. Poderni

14:00-15:30 Session 24 – Mine Rehabilitation/Tailings/Environmental Issues
Chair: Dr. Jan Gottfried, Japan

1. Landscape Evaluation of Quarry using Virtual Reality Simulation
Takahiko Hokazono, Naohiro. Otsuka, Yutaka Shida, and Mitsugu Saito, Shin Caterpillar Mitsubishi Ltd.,
Japan
2. Waste Water Treatment in Quarries of Technical Stone
Branko Salopek, Gordan Bedekovic, Ivan Sobota, Faculty of Mining, Geology & Petroleum Engineering,
University of Zagreb, Croatia
3. Prediction of Rock Fragmentation in Open Pit Mines, using Neural Network Analysis
K. Oraee and B. Asi, Kavoshgaran Consulting Engineering, Iran

15:30-16:00 Coffee Break

16:00-17:30 Session 25 – Mine Rehabilitation/Tailings/Environmental Issues
Chair: Professor Richard McNearney, United States

1. Area Recovery Project of Dimension Stone Quarry Closure

A. Stellin, W.T. Hennies, L. Soares, F. Fujimura, M.R.M. Stellin, V.H. Lauand

Mining and Petroleum Engineering Department, Polytechnic School, University of São Paulo, Brazil

2. Technological and ecological aspects of complex using of mineral raw materials of Kazakhstan

A.A. Zharmenov, V.S. Muzgina, A.Zh. Terlikbayeva

National Center on Complex Processing of Mineral Raw Materials of the Republic of Kazakhstan RSE

3. The Use of Quarry Fines for Mortar: A Proposal of Methodological Studies

L.Z.D'Agostino; L.Soaes; W.T. Hennies, W.T., F. Fujimura

Department of Mining and Petroleum Engineering, Polytechnic School, Brazil

4. Optimum Orientation of Siahbishe Hydro-Electric Pumping storage Power Cavern

A.Ghazinian and Nadia Shafiezadeh, Tarbiat ModarresUniversity, Iran

WEDNESDAY, NOVEMBER 2
ASSINIBOINE ROOM

8:30-10:00 Session 26 – Mine Design and Computer Simulation
Chairs: Professor Doug Stead, Canada
Dr. A.A. Salama, Canada

1. Controlling Efficiency and Production Goals Using Simulation
Victor Tenorio, Sukumar Bandopadhyay, University of Alaska, USA
2. Dynamic Simulation of Cable Shovel Specific Energy in Oil Sands Excavation
Kwame Awuah-Offei, Samuel Frimpong, Hooman Askari-Nasab, University of Missouri-Rolla, USA
3. Accuracy of Least-squares Monte Carlo in Valuing Mineral Properties
Sabry A. Abdel Sabour and Richard Poulin, Universite Laval, Canada
4. A Study on the Detection of Misfiring Cylinder of the Diesel Engine in Excavation Machinery Using Improved ALM Analysis
Youhei Kawamura, Makoto Nagayama, Masuyuki Ujihira, Dauren F. Akhmetov, Fumito Ito, Nobuharu Aoshima, University of Tsukuba, Japan

10:00-10:20 Coffee Break

10:30-12:00 Session 27 - Mine Design and Computer Simulation
Chair: Mr. Martin Hais, Czech Republic

1. A Challenge for the Multibodysimulation (MBS)
Holger Haut, Univ of Aachen BGMR, Michael Dietrich, TEREX Mining, Karl Nienhaus, BGMR, Germany
2. Dealing with the Escape of Hazardous Gases from Underground by Means of Modelling
Jan Gottfried, Vladimír Strakos, Hideki Shimada and Kikuo Matsui, Kyushu University, Japan
3. System of Automatic Stabilization
Leonid Pevzner and Valeria Dmitrieva, Moscow State Mining University, Russia
4. Numerical Simulation of Explosion-induced Fractures in Rocks
B. Mohanty, Z. Zhu and M. Paventi, University of Toronto/Inco Limited, Canada

12:15-13:45 Luncheon
Luncheon Speaker: Dr. Vera Muzgina
Introduced by Professor R. Poderni

14:00-15:30 Session 28 - Mine Design and Computer Simulation
Chair: Professor Gento Mogi, Japan

1. Software Developed for Calculation of Optimum Cut-Off Grade and Break-Even Stripping Ratio Based on Modified O'Hara Estimator
 Afshin Akbari Dehkharghani (Azad University, Sciences and Researches Branch) and Morteza Osanloo (Amir Kabir University of Technology), Iran
2. Analysis of Cutting Resistances for Bucket Wheel Excavators in Hard Clay
 Carsten Drebenstedt and Steffen Päßler, TU Bergakademie Freiberg, Germany
3. Developing Copper Break-Even Stripping Ratio Graph Based Upon Modified O'Hara Cost Estimator
 Morteza Osanloo (Amir Kabir University of Technology) and Afshin Akbari Dehkharghani (Azad University, Sciences and Researches Branch), Iran.

15:30-16:00 Coffee Break

16:00-17:30 Session 29 – Mine Design and Computer Simulation
Chair: Professor Wildor Hennies, Brazil

1. Optimization of schemes and parameters of open cast's freight traffics by means of graphs and imitative simulation
 U.A. Dzharlkaganov, D.G. Bukeikhanov, K. Ja. Chuprin, Natl. Centre on Complex Processing of Mineral Raw Materials of the Republic of Kazakhstan, Kazakhstan
2. Application of a Model Based Method of Computer to Increase Efficiency of Flotation Control
 V. Morozov, V. Avdokhin, V. Stolyarov, V. Mitin, Moscow State University of Mining, Russia
3. Noise and dust emissions from mining activities: A software for measurement management and analysis of suitable reduction techniques
 Enrico Lovera, Caterina Cigna and Mario Patrucco –, DITAG, Politecnico di Torino, Italy

WEDNESDAY, NOVEMBER 2
CASTLE ROOM

8:30-10:00 Session 30 – Maintenance and Productivity Management
Chair: Ms. Gail Powley, Canada

1. Training for new Underground Rock Bolters Using Virtual Reality
Vanja Dezelic, Derek B. Apel, David Denney, Michael G. Hilgers, R. Larry Grayson, University of Missouri-Rolla, USA
2. Production Management in the Diamond Industry
Richard Toneguzzi and Sylvia Wong, Hatch Ltd., Canada
3. Selected engineering solutions for dynamic load suppression for BWE working organ while digging
R.Y. Poderni, Moscow State University, A. I. Shenderov, Natl. Scientific Mining Center, Russia
4. Benefits of a Downtime Accounting System
Christine Leshner and Greg Bunting, United States

10:00-10:20 Coffee Break

10:30-12:00 Session 31 - Maintenance and Productivity Management
Chairs: Professor Yoginder Chugh, United States
Dr. Jyri-Rivaldo Pastarus, Estonia

1. Integrating Real-time Mine Haul Road Maintenance Management with Mine-wide Asset Location and Communication Systems
Roger Thompson, Alex Visser and Stephan Heyns, University of Pretoria, S. Africa
2. Possibilities for Optimization of Reliability and Maintenance in Mining Operations based on Experience in Nuclear Industry
Dragan Komljenovic, Jacek Paraszczak and Vladislav Kecojevic, Hydro-Quebec, Canada
3. Preparation and burning of water-fuel (water in oil type) emulsion in boilers of heat generating installations
Alexander Balabysenko and Roman Poderni, Moscow State Mining University, Russia
4. Operating Excellence - The Key for Improved Capacity in CVRD Mines
Ivan Montenegro and Ricardo Noronha, CVRD, Brazil

12:15-13:45 Luncheon
Luncheon Speaker: Dr. Vera Muzgina
Introduced by Professor R. Poderni

14:00-15:30 Session 32 – Mine Equipment Selection and Utilization
Chair: Ivan Montenegro de Menezes, Brazil

1. Selection of a Mechanical Mining System for an Underground Chromite Mine
N. Bilgin, H. Copur, C. Balci, H. Tuncdemir, D. Tumac, C. Feridunoglu, Istanbul Technical University, Turkey
2. Drilling and Blasting Automation
Tim Skinner, Elk Valley Coal Corp., Canada

3. Benefits of High Accuracy GPS Applications to the minerals Industry

Peter Dailey, Anthony Szwilski and Richard Begley, Rahall Transportation Institute, United States

15:30-16:00 Coffee Break

Closure