Journal of Powder Metallurgy and Mining

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Biography

- Samuel Frimpong is Professor and Chair of the Department of Mining and Nuclear Engineering and the Robert H. Quenon Endowed Chair at the Missouri University of Science and Technology (Missouri S&T).
- He holds PhD (1992) from the University of Alberta, MSc (1988) from the University of Zambia, and Postgraduate Diploma (Distinction, 1986) and BSc (Hon, 1985) from the University of Science and Technology, Ghana.
- His professional experience includes over 25 years of research and teaching, over 20 years of university administration, and several years of industry practice.
- He previously worked as Professor and Associate Professor (University of Alberta), Assistant Professor (Technical University of Nova Scotia),

- Postdoctoral Fellow (University of Alberta), Research Associate (University of Zimbabwe) and as Mining Engineer (Ashanti Goldfields, Ghana National Manganese Corp, State Gold mining Corp and Agri-Petco of Ghana) and Underground Miner (Tarkwa Goldfields).
- His current research areas include surface mining systems engineering, excavation and machine health, extra heavy oil recovery, safety and hazards engineering and stochastic simulation. He continues to lead major research initiatives in these areas with over $32 million funding from a portfolio of national and international agencies.
- The results of his research initiatives include over 200 refereed journal and conference publications, 90 technical reports, and over 150 technical presentations.

- He is also leading major global efforts in extending mining engineering education and research initiatives into Afghanistan, Australia, Botswana, China, Dominican Republic, Ghana, Mongolia, Peru and Saudi Arabia.
- Frimpong serves as a Member of the Mine Safety and Health Research Advisory Council for the Center for Disease Control, appointed by the US HHS Secretary. He is a recipient of the CPI Distinguished Lecturer Award, Award of Distinction by World Mining Congress, University of Alberta/CIDA PhD Scholar, Life Patron of the University of Mines and Technology Alumni Association, Grand Award by the Northwest Mining Association, and a UNESCO Research Fellow. He is Co-Chair of the ASCE-UNESCO Monograph on Emerging Energy Technologies, a member of the APLU Board on Natural Resources,

- Vice Chair of the Minerals and Energy Section of the National Association of State Universities and Land Grant Colleges and a member of the College of Reviewers for Canada Foundation for Innovation. He is currently an Associate Editor for International Journal of Mining and Minerals Engineering, Editor for the International Journal of Mining, Reclamation and Environment, and a reviewer for over 15 refereed journals in mining engineering and related fields and previously served as Associate Editor for ASCE Journal of Energy Engineering.
- He is a Registered Professional Engineer in Canada, and a member of the Society for Mining, Metallurgy and Exploration, Canadian Institute of Mining, Metallurgy and Petroleum, American Society of Civil Engineers, and the Society for Modeling and Simulation International.

Research Areas

- Surface Mining Systems Engineering
- Formation Excavation Engineering
- Machine Dynamics
- Heavy Machinery Imaging and Integration
- Intelligent Mining Systems
- Stochastic Processes and Risks Simulation
- Extra Heavy Oil Extraction
- Mine Safety, Health and Hazards Engineering
- Augmented Machine Visualization

2005-2014 Publications

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- ✓ Nyaaba, W., S.Frimpong and El-Nagdy, K. 2014. Optimization of Ventilation Networks using the Lagrangian Algorithm for Equality Constraints. *International Journal of Mining, Reclamation and Environment (IJMRE)*. © Taylor & Francis, UK (in print).
- ✓ Frimpong, S., J.M.Whiting and R.Suglo. 2013. Preparing Graduate Talent for the Mining Industry: A New Metric System Based on an Old Tradition; *Mining Engineering, Vol. 65, No. 6.* © SME, Littleton, CO: 62 – 70.
- ✓ Frimpong S. 2013. Advancing Knowledge and Frontiers for Safe and Productive Surface Mining. Editorial for Special Edition on Surface Mining. *Journal of Powder Metallurgy and Mining, Vol. 2, No. 1,* 1000e106; ISSN: 2168-9806 JPMM
- ✓ Adadzi E. and S.Frimpong. 2013. Stochastic Non-Linear Optimization of Equipment Productivity in Multi-Seam Formations. Special Edition on Surface Mining. *Journal of Powder Metallurgy and Mining, Vol. 2, No. 1.* ISSN 2168-9806 JPMM
- ✓ Raza M.A. and S.Frimpong. 2013. Cable Shovel Stress & Fatigue Failure Modeling - Causes and Solution Strategies Review. Special Edition on Surface Mining. *J Powder Metall Min. Vol. 2, No. 1.* ISSN: 2168-9806 JPMM.

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- ✓ Aouad, N. and S.Frimpong. 2013. Virtual Prototype Simulation of Truck Vibrations in High-Impact Shovel Loading Operations. Special Edition on Surface Mining. *J Powder Metall Min, Vol. 2, No. 1.* ISSN: 2168-9806 JPMM.
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- ✓ Frimpong, S., G.Galecki and Y.Li. 2012. Dump Truck Tire Stress Simulation for Extended Service Life; SME TRANSACTIONS, Vol. 332; © SME, Littleton, CO: 422 – 429.
- ✓ Brown, O.F. and S.Frimpong. 2012. Non-Linear FE Analysis of Blade – Formation Interactions in Excavation. Mining Engineering. © SME, Littleton, CO: 60 – 67.
- ✓ Li, Y., S.Frimpong and W.Y.Liu. 2012. 3D Finite Element Analysis of PWA-Oil Sands Terrain System Interaction. *Advances in Acoustics and Vibration, Volume 2012 (2012),* Article ID 324515. © Hindawi Publications: 10 pages.
- ✓ Li, Y., W.Y. Liu and S.Frimpong. 2012. Effect of Ambient Temperature on Stress, Deformation and Temperature of Dump Truck Tire. Engineering Failure Analysis (ENG FAIL ANAL)Publisher: Elsevier *Engineering Failure Analysis, Vol. 23* (DOI: 10.1016/j.engfailanal. 2012.02.004): 55–62.
- ✓ Frimpong, S., G.Galecki and Z.Chang. 2011. Dump truck operator vibration control in high-impact shovel loading operations. *International Journal of Mining, Reclamation and Environment (IJMRE)*, Vol. 23, No. 3 (September). © Taylor & Francis, UK: 213 – 225

2005-2014 Publications

- Awuah-Offei, K. and S.Frimpong. 2011 Efficient Cable Shovel Excavation in Surface Mines. *Geotech and Geol. Eng., Vol. 29(1)*. © Springerlink, DOI: 10.1007/s10706-010-9366-9: 19-26.
- Frimpong, S., O.R.Ayodele, K.Awuah-Offei and O.F.Brown. 2010. Numerical Simulation Software for Oil Sand Slurry Flow in Flexible Pipelines. *Journal of Energy Engineering, Vol. 136, No. 2*. © ASCE, Reston, VA: 51-57.
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- Frimpong, S. 2008. Global Energy Security: The Case for a Multifaceted Solution Strategy. Editorial for the J. of Energy Engineering, Vol. 134, No. 4. © ASCE, Reston, VA: 109 – 110.

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- ✓ Frimpong, S., Y.Hu and H.I.Inyang. 2008. Dynamic Modeling of Hydraulic Shovel Excavators for Geomaterials. *Int. Journal of Geomechanics (IJOG)*, Vol. 8(1); © ASCE, Reston, VA: 2 – 10.
- ✓ Frimpong, S. and Y.Hu. 2008. Intelligent Shovel Excavation Modeling and Simulation. *IJOG*, Vol. 8(1). © ASCE Publications, Reston, VA: 20 - 29.
- ✓ Frimpong, S., Y.Li and K.Awuah-Offei. 2008. Cable Shovel Health and Longevity and Operator Efficiency in Oil Sands Excavation. *IJMME, Vol. 1, No. 1*. © Indersci., UK: 47 – 61.
- ✓ Li, Y. and S.Frimpong, 2008. Hybrid Virtual Prototype for Analyzing Cable Shovel Component Stress. Int. J. of Adv. Manufacturing Tech., Vol. 37. © Springer-Verlag, London, UK: 423 – 430.
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- ✓ Frimpong, S. and Y.Li. 2008. Structural Dynamics and a Virtual Prototype Simulator of the HAB System for Oil Sands Production. *J. of Energy Engineering, Vol. 134, No. 3 (September)*. © ASCE, Reston, VA: 81-86.
- ✓ Frimpong, S., K.Awuah-Offei and G.Dogbe. 2007. Optimum Short-Term Futures Hedge using Stochastic Linear Programming. *International Journal of Risk Assessment and Management (IJRAM)*, Vol. 7(5). © Inderscience, Geneve 15, Switzerland: 639-655.

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- ✓ Frimpong, S. and Y.Li. 2007. Cable Shovel Health and Longevity in Formation Excavation. *Mining Engineering, Vol. 59(12) (December).* © SME, Littleton, CO: 50 - 56.
- ✓ Askari-Nasab, H., S.Frimpong and J.Szymanski. 2007. Modeling Open Pit Dynamics using Discrete Simulation. *Int. Journal of Mining, Reclamation & Environment*, *Vol. 21, No. 1.* © Taylor & Francis, Oxfordshire, UK: 35 - 49.
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- ✓ Frimpong, S. and Y.Li. 2007. Spatial Kinematics and Virtual Prototype Simulation of the Cable Shovel Performance. *SME Transactions*, *Vol. 322*. © SME, Littleton, CO: 78 – 87.
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- ✓ Frimpong, S. and Y.Hu. 2005. Dynamic Hydraulic Shovel Simulator for Improved Machine Performance. *CIM Bulletin*, *Vol. 98, No. 1095*. © CIM Publications, 1210-3400 de Maisonneuve Blvd. W., Montreal, Canada: 1 – 5.
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- Frimpong, S., Y.Li and N.Aouad. 2008. "Intelligent Machine Monitoring and Sensing for Safe Surface Mining Operations"; *Book Chapter in Appropriate Technologies for Environmental Protection in the Developing World, ISBN #: 978-1-4020-9138-4;* Yanful, E.K. (Editor); © Springer Science, New York, NY: 217-227.

- Szymanski, J. and S.Frimpong. 2005. Sprocket Carrier Roller for a Tracked Vehicle". Patent File #: 2002050 (CA2). Serial #: 2,481,664). TEC Edmonton, University of Alberta, Edmonton, Canada.

Thank you