ROCK SPECIFIC ENERGY AS A MEASURE OF PERFORMANCE IN MECHANICAL EXCAVATION AND TUNNELING UNDER MIXED GROUND CONDITIONS

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Tunneling projects can easily cost millions or billions of dollars. These costs can become prohibitive, especially near cities where cost overruns are likely to be borne by taxpayers due to hard rock or mixed ground conditions. The objective of this presentation is to give an overview of our recent research work at the Colorado School of Mines where we have utilized rock specific energy derived from large scale laboratory linear cutting tests, mechanical tests, and artificial neural network modeling to understand rock behavior. The presentation is given in the context of present and previous research which has been conducted at our Earth Mechanics Institute (EMI) in the department of mining engineering at Colorado School of Mines for more than 40 years.

Dr. Rennie Kaunda is an Assistant Professor in the Mining Engineering Department at the Colorado School of Mines. Dr. Kaunda graduated as a Mining Engineer from the University of Arizona in 1999. He obtained his M.S. in Mining and Geological Engineering at the same University in 2002, and his Ph.D. (Geotechnics) at Western Michigan University in Kalamazoo, Michigan in 2007.

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He is also a licensed Professional Engineer in the State of Colorado, and has worked in industry (Zambia Consolidated Copper Mines), government (Michigan DEQ), and consulting (Golder Associates (2007 – 2011); SRK Consulting (2011 – 2013). Dr. Kaunda has worked on more than 50 global engineering projects in Africa, Asia, South America and North America. He has also authored/coauthored more than 10 journal publications and more than 20 conference proceedings.

Guests are welcome!

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