



Spring 2017 Colloquium Series

Tuesday, May 2, 2017

1:30-2:00 pm – Meet and Greet –BB340

2:00-3:00 – Seminar Talk – GC Metals Hall



Dr. Jamal Rostami, Hadden/Alacer Gold Endowed Chair and Director of Excavation Engineering and Earth Mechanics Institute (EMI) of the Mining Engineering Department at Colorado School of Mines

STUDY OF DUTY CYCLE OF HAULAGE SYSTEMS IN UNDERGROUND MINING

Abstract:

The underground haulage units are the back bone of many mining operations. Currently diesel and electric units are used in many mines. Diesel engines emit heat, fume, and particles into the air that requires heavy ventilation. Electric units are good but they require pulling heavy cables around that limits their range and is a safety issue. Alternatively, the units that are energized by overhead cables limits the area of applications and have issue of sparking. Thus there has been a need to use battery powered units that will eliminate the above noted issues. However, sizing of the batteries to last a full shift before the need for change over has been challenging. The study discussed in this presentation is about measurement of the power cycle for haulage units in real operational conditions to be able to understand the power needed and intensity of use as well as time between peak uses that allows battery to recharge and dissipate heat. The paper discusses different approaches to measure the power consumption of various units, the results of measurements, and preliminary analysis of the data to allow for sizing of the batteries.

Bio:

Dr. Rostami is the Hadden/Alacer Gold Endowed Chair and Director of the Excavation Engineering and Earth Mechanics Institute (EMI) of the dept. of Mining Engineering at CSM. He has a BSc in mining engineering from Univ. of Tehran, Iran and his MSc and PhD in mining engineering in 92 and 97 from CSM, respectively. He has been a faculty at Univ. of Tehran from 1988 through 2002, a full time consultant with major A&E companies from 2002 till 2007 when he joined the Pennsylvania State University (PSU), as Centennial Chair of Carrier Development in Mining. He has over 26 years of experience in design, management, research, and teaching in the field of mining, tunneling, and underground construction. Dr. Rostami is a registered Professional Engineering (PE) in Maryland, Pennsylvania, and Virginia. He has published over 50 peer reviewed journal publication and 150 conference papers and many technical reports. He is a member of SME, ASCE, ARMA, ISEE, IRSME, IRRMS, and TRB AFF-60 tunneling committee. Dr. Rostami was named the recipient 2014 of the Pittsburgh Coal Mining Institute of America (PCMIA) 2014 Stephen McCann Memorial Educational Excellence Award. He is also the founder of Professors Without Borders (PWOB).