

Dr. Rennie Kaunda, PE

- Assistant Professor, Mining Engineering Department, Colorado School of Mines
- Previous to CSM:
 - Golder Associates (2007-2011)
 - SRK Consulting (2011-2013)
- Degrees:
 - BS and MS, University of Arizona
 - PhD, Western Michigan University



Rennie Kaunda: Teaching and Research

Academic Activities:

- CSM Courses:
 - MNGN 445 “Rock Slope Engineering”
 - MNGN 498 “Mine Water & Environment”
 - MNGN 575 “Mining Equipment Maintenance Automation & Economics”
 - MNGN 598 “Computational Neural Networks in Mining Engineering”
- Education Innovation:
 - Mine Water and Environment
 - Computational Neural Networks in Mining

Sample Research Activities:

- Simulation of underground coalmine fires using neural networks
- Characterization and recycling of mine tailings for engineering use
- Optimization of rock fragmentation in block caving using digital and EGS techniques

Rennie Kaunda: Current Research Projects

- Simulation of Underground Coalmine Fires Using Neural Networks
 - Anticipated Funding Agency: Alpha Foundation
 - Co-PI: Dr. Lewis Ntaimo, Texas A & M
- Characterization of In-situ Stresses and Fluid Flow Behavior in Deep Mining Based on EGS Techniques, Laboratory Testing and Numerical Modeling
 - Anticipated Funding Agency: DOE
 - Co-PI: Dr. Masami Nakagawa, CSM
- Optimization of Rock Fragmentation in Block Caving Using Digital Imaging and EGS Techniques
 - Anticipated Funding Agency: DOE
 - Co-PIs: Dr. Mark Kuchta, CSM; Dr. John Kemeny, UA

Simulation of Underground Coalmine Fires Using Neural Networks

Project Objectives:

- Develop a mine rescue tool for fire simulation in underground coal mines.
- Use mathematical programming and artificial neural networks based on historical case studies and field studies.

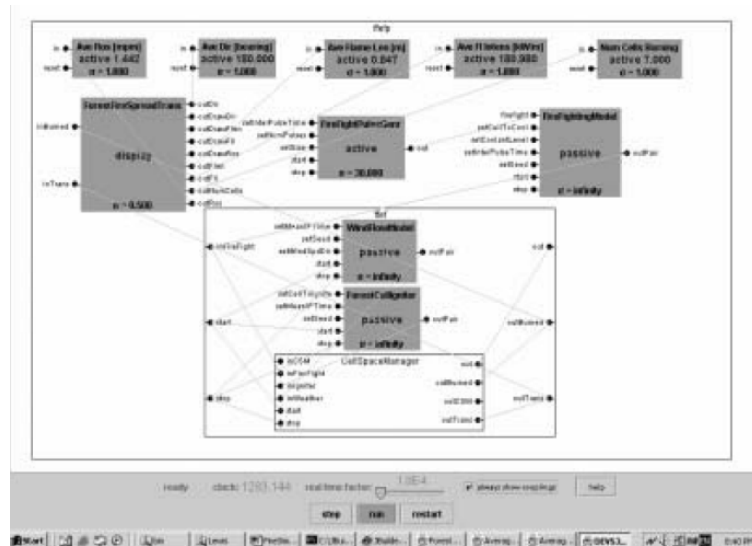
Anticipated Funding Agency:

Alpha Foundation

Principal Investigators:

Dr. Rennie Kaunda

Dr. Lewis Ntaimo



Characterization of In-situ Stresses and Fluid Flow Behavior in Deep Mining Based on EGS Techniques, Laboratory Testing and Numerical Modeling

Project Objectives:

- Develop tools for predicting rock/fluid behavior in deep mining.
- Use EGS techniques, laboratory testing and numerical modeling.

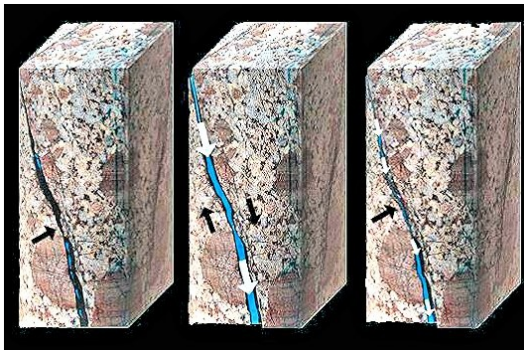
Anticipated Funding

Agency: DOE

Principal Investigators:

Dr. Rennie Kaunda

Dr. Masami Nakagawa



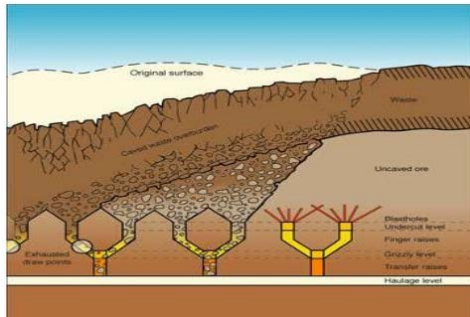
(conceptual image from arizonaenergy.org)



Optimization of Rock Fragmentation in Block Caving Using Digital Imaging and EGS Techniques

Project Objectives:

- Develop 3D digital imaging tools for rock fragmentation monitoring
- Develop fragmentation prediction models



(conceptual image from slideshare.net)

Anticipated Funding Agency: DOE

Principal Investigators:
Dr. Rennie Kaunda
Dr. Mark Kuchta
Dr. John Kemeny

