ENERGETIC MATERIALS, ROCK CHARACTERIZATION AND GEOMECHANICS (EMRGe) RESEARCH CENTER

Dr. Andreas Eckert (Director)

Research Investigators
Lana Alagha (MinEng), Kwame Awuah-Offei (MinEng), Baojun Bai (PetEng), Andreas Eckert (PetEng), Stephen Gao (GeoPhysics), Leslie Gertsch (GeoEng), Abdulmohsin Imqam (PetEng), Catherine Johnson (ExpEng), Jenny Liu (CivEng), Kelly Liu (GeoPhysics), Marek Locmelis (GeoPhysics), Jeremy Maurer (GeoEng), Phillip Mulligan (MechAero), Jonathan Obrist Farner (GeoPhysics), Guney Olgen (CivEng), Kyle Perry (ExpEng), J. David Rogers (GeoEng), Taghi Sherizadeh (MinEng), Ryan Smith (GeoEng), Mingzhen Wei (PetEng), Xiong Zhang (CivEng).

Staff
Evette Eickelmann (Office Support Assistant IV)

The Energetic Materials, Rock Characterization and Geomechanics (EMRGe) Research Center provides a multidisciplinary environment for researching energetic materials and geomechanics in a joint effort of subterranean exploration and national defense to address the many complex challenges in subsurface engineering disciplines.

Areas of research include:

• Reagent design for mineral pressing applications, froth flotation, ionic liquids
• Engineering geophysics, ground penetrating radar, electrical resistivity tomography
• Modeling, simulation, and optimization for sustainable mining systems
• Enhanced oil recovery and water management, particle-gels, hydrogel, and nano-fluidics
• Numerical geomechanics, petroleum related geomechanics modeling
• Geophysical exploration of the Earth’s interior, geophysics, seismology, rock physics
• Rock mechanics, acoustic emissions, mine hazard prevention and controls, seismic based void detection
• Space mining, rock excavation, mining methods development, mine design
• Mining health and safety, ground control, underground communications
• Explosives engineering and technology, explosive taggants, shock physics
• Geophysical subsurface imaging, seismic interpretation, seismic anisotropy
• Lidar scanning, landslides, autonomous navigation
• Energetics, rock dynamics, ground control, coal dust explosion suppression

E-mail emrge@mst.edu or visit our website at https://emrge.mst.edu.