Shock and Vibration

Special Issue on
Shock and Vibration in Deep Mining Science

CALL FOR PAPERS

With the increasing depth and intensity of mining, events such as large deformations, collapses, rockbursts, and other induced dynamic disasters pose an ever-greater risk. Indeed, they present a serious threat to the safety and viability of efficient and sustainable deep mining.

Numerous experimental and field investigations show that mining-induced shock or vibration can trigger significant collapses and even cause seismic disasters in regions of high-stress concentration. As such, there is a pressing need to develop advanced computational methods, experimental techniques, means of monitoring, data analysis, and innovative and efficient mining strategies to both reduce risk and maximize returns.

In this special issue, we invite contributions that explore shock and vibration in deep mining, from data collection and analysis to novel experimental techniques and safety evaluation. Manuscripts should clearly describe the physical and geometrical properties of the scenarios considered, as well as the method of analysis used and means of interpretation. Review article discussing the state of the art, and future directions for relevant avenues of investigation, will also be considered.

Potential topics include but are not limited to the following:

- Automatic P/S-wave arrival detection and picking
- Computational methods for velocity tomography
- Closed-form solutions for identifying shock sources
- Optimized sensor networks for high precision localization
- Inversion algorithms of seismic/acoustic emission data
- Discrimination between seismic and explosive events
- Inverse kinematic problems including travel-time tomography
- Machine learning algorithms for identifying noise signal
- Velocity analysis for different seismic events (reflections, refractions, and diffractions)
- Data acquisition systems
- Studies involving piezonuclear fission reactions triggered by fracture and earthquakes
- Methodologies for evaluating mining safety under seismic/explosive loads
- Rock burst precursor information
- Microseismic big data analysis methods
- Blast vibration monitoring and control
- Rock stability/reliability analysis under disturbance loads

Authors can submit their manuscripts through the Manuscript Tracking System at https://mts.hindawi.com/submit/journals/sv/svdm/.

Papers are published upon acceptance, regardless of the Special Issue publication date.

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