

Editorial

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Rock dynamics is at present a relatively under-studied topic in the Rock Mechanics and Rock Engineering field. However, it is often necessary to have to deal with dynamic loading, ranging from earthquakes to vibrations and explosions. The understanding of rock and rock mass response under dynamic conditions and the dynamic phenomenon of rock failure, as exemplified by rock bursting in deep tunnels and mines, is also relevant.

Renewed interest in these topics can presently be witnessed worldwide. In 2008, the International Society for Rock Mechanics (ISRM) established a Commission on Rock Dynamics. In 2010, the International Tunnelling Association (ITA) re-established the Working Group on Earthquake Effects on Tunnels.

The aim of the ISRM Commission is to (a) provide a forum for the sharing and exchange of knowledge on rock dynamics research and engineering applications, (b) coordinate rock dynamics research activities, (c) produce reports and guidelines on the study and engineering applications of rock dynamics. The aim of the ITA Working Group is to understand the effects of earthquakes, particularly the interaction between seismic waves transmitting through

rock masses and the responses of rock masses and built structures.

Remarkable advancements have recently been made due to this renewed interest in theoretical studies, physical testing and numerical modelling, as well as in engineering applications. The *Rock Mechanics and Rock Engineering Journal* has edited this Special Issue with the intent of providing a consented summary of the current state of knowledge. This issue includes 20 papers which represent some of the most recent works on rock dynamics and earthquake engineering.

New laboratory testing equipment, studies on rock fracturing and failure, and seismic wave propagation through rock and rock discontinuities are presented. Topics such as the interaction of rock structures and ground motion, rock slopes and underground cavities, rock bursting in deep mines, and continuum and discrete modelling methods are also discussed.

The Editors of the *Rock Mechanics and Rock Engineering Journal* would welcome the setting up of an Open Forum on the above topics. Readers are kindly requested to send discussions on the papers published in this issue to RM&RE.