
Contents

The Present and Future of Rock Testing: Highlighting the ISRM Suggested Methods	1
Resat Ulusay	
 Part I Laboratory Testing	
ISRM Suggested Method for Determination of the Schmidt Hammer Rebound Hardness: Revised Version	25
Adnan Aydin	
Suggested Methods for Determining the Dynamic Strength Parameters and Mode-I Fracture Toughness of Rock Materials	35
Y. X. Zhou, K. Xia, X. B. Li, H. B. Li, G. W. Ma, J. Zhao, Z. L. Zhou and F. Dai	
ISRM Suggested Method for the Determination of Mode II Fracture Toughness.	45
Tobias Backers and Ove Stephansson	
ISRM Suggested Method for Reporting Rock Laboratory Test Data in Electronic Format.	57
Hong Zheng, Xia-Ting Feng, Zuyu Chen, J. A. Hudson and Yujie Wang	
Upgraded ISRM Suggested Method for Determining Sound Velocity by Ultrasonic Pulse Transmission Technique	95
Adnan Aydin	
ISRM Suggested Method for Determining the Abrasivity of Rock by the CERCHAR Abrasivity Test.	101
Michael Alber, Olgay Yaratlı, Filip Dahl, Amund Bruland, Heiko Käsling, Theodore N. Michalakopoulos, Marilena Cardu, Paul Hagan, Hamit Aydın and Ahmet Özarslan	
ISRM-Suggested Method for Determining the Mode I Static Fracture Toughness Using Semi-Circular Bend Specimen	107
M. D. Kuruppu, Y. Obara, M. R. Ayatollahi, K. P. Chong and T. Funatsu	
ISRM Suggested Methods for Determining the Creep Characteristics of Rock	115
Ömer Aydan, Takashi Ito, Ugur Özbay, M. Kwasniewski, K. Shariar, T. Okuno, A. Özgenoğlu, D. F. Malan and T. Okada	

ISRM Suggested Method for Laboratory Determination of the Shear Strength of Rock Joints: Revised Version	131
José Muralha, Giovanni Grasselli, Bryan Tatone, Manfred Blümel, Panayiotis Chryssanthakis and Jiang Yujing	
ISRM Suggested Method for the Needle Penetration Test	143
Resat Ulusay, Ömer Aydan, Zeynal A. Erguler, Dominique J. M. Ngan-Tillard, Takafumi Seiki, Wim Verwaal, Yasuhito Sasaki and Akira Sato	
 Part II Field Testing	
ISRM Suggested Method for Rock Fractures Observations Using a Borehole Digital Optical Televiewer	159
S. J. Li, Xia-Ting Feng, C. Y. Wang and J. A. Hudson	
ISRM Suggested Method for Measuring Rock Mass Displacement Using a Sliding Micrometer	169
S. J. Li, Xia-Ting Feng and J. A. Hudson	
ISRM Suggested Method for Step-Rate Injection Method for Fracture In-Situ Properties (SIMFIP): Using a 3-Components Borehole Deformation Sensor	179
Yves Guglielmi, Frederic Cappa, Hervé Lançon, Jean Bernard Janowczyk, Jonny Rutqvist, C. F. Tsang and J. S. Y. Wang	
ISRM Suggested Methods for Rock Stress Estimation—Part 5: Establishing a Model for the In Situ Stress at a Given Site	187
Ove Stephansson and Arno Zang	
 Part III Monitoring	
ISRM Suggested Method for Monitoring Rock Displacements Using the Global Positioning System (GPS)	205
Norikazu Shimizu, Shinichiro Nakashima and Tomohiro Masunari	
 Part IV Failure Criteria	
Suggested Methods for Rock Failure Criteria: General Introduction	223
R. Ulusay and J. A. Hudson	
Introduction to Suggested Methods for Failure Criteria	225
Bezalel Haimson and Antonio Bobet	
Mohr–Coulomb Failure Criterion	227
Joseph F. Labuz and Arno Zang	
The Hoek–Brown Failure Criterion	233
Erik Eberhardt	

Three-Dimensional Failure Criteria Based on the Hoek–Brown Criterion	241
Stephen Priest	
Drucker–Prager Criterion	247
Leandro R. Alejano and Antonio Bobet	
Lade and Modified Lade 3D Rock Strength Criteria.	253
Sergio A. B. da Fontoura	
A Failure Criterion for Rocks Based on True Triaxial Testing	259
Chandong Chang and Bezalel Haimson	
 Part V Additional Article on Rock Characterization	
A Survey of 3D Laser Scanning Techniques for Application to Rock Mechanics and Rock Engineering	265
Quanhong Feng and Kennert Röshoff	

The ISRM Suggested Methods for Rock
Characterization, Testing and Monitoring: 2007-2014
Ulusay, R. (Ed.)
2015, XIII, 293 p. 218 illus., 53 illus. in color., Hardcover
ISBN: 978-3-319-07712-3