# Abbas Majdi, Ph.D.

School of Mining Engineering

University of Tehran

Tel (Direct): +98 (21)88013043

email: amajdi@ut.ac.ir

Website:

**EDUCATION**

**Ph.D In Mining Engineering (Rock Mechanics and Tunnel Engineering)**Faculty of Graduate Studies, McGill University, Montreal, Quebec, Canada 1985-1988
**M.Sc In Civil Engineering**Faculty of Engineering, University of Alberta, Edmonton, Alberta, Canada 1981-1984
**M.A.Sc In Engineering Geology**Faculty of Graduate Studies, McGill University, Montreal, Quebec, Canada 1977-1980
**B.Sc In Geological Sciences**Azarabadegan University (Tabriz University), Tabriz, Eastern Azarbayejan, Iran 1971-1975

**PUBLICATIONS**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **1344** | **14** | **50** | **27** | **1** |
| Citations | h-Index | Article | Conference | Book |

***Articles***

**1.** Predicting the Critical Grout Pressure in Anisotropic Rocks Based on the Maximum Energy Release Rate Criterion. Yazdani Mohammad, Majdi Abbas (2024)., International Journal of Geomechanics, 24(2).

**2.** Prediction of mud weight window based on strain energy method. Babaee Maryam, Majdi Abbas (2023)., PETROLEUM SCIENCE AND TECHNOLOGY, 41(24), 1-21.

**3.** Investigating mechanical and geometrical effects of joints on minimum caving span in mass caving method. Alipenhani Behnam, Majdi Abbas, Bakhshandeh Amnieh Hassan (2023)., International Journal of Mining and Geo-Engineering, 57(2), 223-229.

**4.** Application of Finite Element Method for Simulation of Rock Mass Caving Processes in Block Caving Method. Ali Penhani Behnam, Bakhshandeh Amnieh Hassan, Majdi Abbas (2023)., International Journal of Engineering, 36(1), 139-151.

**5.** Mathematical Determination of Rock Joints Morphological Profile. zadhesh Jamal, Majdi Abbas (2022)., Rudarsko-geološko-naftni zbornik, 37(5), 117-131.

**6.** Evaluation of hydraulic jacking mechanism during in-situ rock grouting using strain energy release rate method (SERRM). Yazdani Mohammad, Majdi Abbas (2022)., International Journal of Geomechanics, 22(11).

**7.** Cavability Assessment of Rock Mass in Block Caving Mining Method based on Numerical Simulation and Response Surface Methodology. Alipenhani Behnam, Majdi Abbas, Bakhshandeh Amnieh Hassan (2022)., Journal of Mining and Environment (JME),, 13(2), 579-606.

**8.** Estimation of Rock Joint Trace Length Using a Support Vector Machine (SVM). zadhesh Jamal, Majdi Abbas (2022)., Rudarsko-geološko-naftni zbornik, 37(3), 55-64.

**9.** Physical model simulation of block caving in jointed rock mass. Alipenhani Behnam, Bakhshandeh Amnieh Hassan, Majdi Abbas (2022)., International Journal of Mining and Geo-Engineering, 56/3(1), 1-11.

**10.** Determining Probability Distribution Functions of Rock Joint Geometric Properties. zadhesh Jamal, Majdi Abbas (2022)., Journal of Mining and Environment (JME),, 13(1), 281-308.

**11.** Determination of Caving Hydraulic Radius of Rock Mass in Block Caving Method using Numerical Modeling and Multivariate Regression. Alipenhani Behnam, Majdi Abbas, Bakhshandeh Amnieh Hassan (2022)., Journal of Mining and Environment (JME),, 1(4).

**12.** An Analytical Method of Predicting Length of Grout Penetration in Jointed Rocks. Nazempour Mohammad Mahdi, Majdi Abbas (2021)., Journal of Mining and Environment (JME),, 12(4), 1155-1175.

**13.** Determination of Hydraulic Jacking Mechanism and Maximum Allowable Grout Pressure during Grout Injection in Anisotropic Rocks. Yazdani Mohammad, Majdi Abbas (2021)., Journal of Mining and Environment (JME),, 12(2), 589-603.

**14.** Directional rock mass rating (DRMR) for anisotropic rock mass characterization. Maazaallahi Vahid, Majdi Abbas (2021)., Bulletin of Engineering Geology and the Environment, 80(6), 4471-4499.

**15.** Numerical appraisal of rock mass anisotropy effect on elastic deformations of a circular tunnel. Maazallahi Vahid, Majdi Abbas (2020)., Arabian Journal of Geosciences, 13(13), 1-17.

**16.** 3D Characterization of Uniaxial Compressive Strength of Transversely Isotropic Intact Rocks. Maazallahi Vahid, Majdi Abbas (2020)., Journal of Mining and Environment (JME),, 11(2), 629-641.

**17.** Effect of Hydrostatic Stress Loading on Petrophysical, Geomechanical and Structural Properties of Carbonate Reservoir Rock. Salimidelshad Yaser, Moradzadeh Ali, Kazemzadeh Ezzatallah, Pourafshari Peyman, Majdi Abbas (2020)., journal of Petroleum Research, 28(108), 50-64.

**18.** Uniaxial compressive strength prediction of cement-treated granular soils. Majdi Abbas, Shakerifar Parshan (2019)., Proceedings of the Institution of Civil Engineers-Ground Improvement, 173(1), 1-9.

**19.** Developing new Adaptive Neuro-Fuzzy Inference Systems to predict granular soil groutability. Asadizadeh Mostafa, Majdi Abbas (2019)., International Journal of Mining and Geo-Engineering, 53(2), 133-142.

**20.** Experimental investigation of changes in petrophysical properties and structural deformation of carbonate reservoirs. Salimidelshad Yaser, Moradzadeh Ali, Kazemzadeh Ezzatollah, Pourafshari Peyman, Majdi Abbas (2019)., Petroleum Exploration and Development, 46(3), 565-575.

**21.** Effect of hysteresis on petrophysical properties of limestone hydrocarbon reservoir rock. Salimidelshad Yaser, Moradzadeh Ali, Kazemzadeh Ezzatallah, Pourafshari Peyman, Majdi Abbas (2019)., Geoenergy Sicence and Engineering, 177(2), 745-755.

**22.** Effect of sequential pressure on petrophysical properties of carbonate reservoir rocks. Salimidelshad Yaser, Moradzadeh Ali, Kazemzadeh Ezzatallah, Majdi Abbas (2019)., Journal of iran Petroleum Geology, 8(15).

**23.** Effect of sequential pressure on petrophysical properties of carbonate reservoir rocks 2. Salimidelshad Yaser, Moradzadeh Ali, Kazemzadeh Ezatolah, Majdi Abbas (2019)., Journal of iran Petroleum Geology, 8(19), 19-31.

**24.** Applying evolutionary optimization algorithms for improving fuzzy C-mean clustering performance to predict the deformation modulus of rock mass. Majdi Abbas, Beiki Morteza (2019)., INTERNATIONAL JOURNAL OF ROCK MECHANICS AND MINING SCIENCES, 113(1), 172-182.

**25.** An appraisal of Fracture Mechanism of Pseudo-Rock Samples using Brazilian Test9. Sarfaraz Hassan, Majdi Abbas (2018)., Journal of Mineral Resources Engineering, 2(4), 39-52.

**26.** Simulating energy method for grout-induced crack analysis of rock structures at Chadormalu mine by extended finite element method. Ali Madadi Soroush, Majdi Abbas, Khosravi Mohammad Hossein, Kargar Alireza (2018)., Journal of Mining and Environment (JME),, 10(1), 1-11.

**27.** The Microscopic Studies of Cementation in Sarvak Reservoir Formation, South Azadegan Field. Pashneh Tala Mohammad Hadi, Jozanikohan Golnaz, Majdi Abbas, Nakhaee Ali, Shokrzadeh Maryam (2018)., journal of expoduction oil and gas, 1397(155), 28-24.

**28.** An appraisal of Fracture Mechanism of Pseudo-Rock Samples using Brazilian Test. Sarfraz Hassan, Majdi Abbas (2018)., Journal of Mineral Resources Engineering, 2(4), 39-52.

**29.** AN INVESTIGATION INTO CRACKS DEVELOPMENT WITH USE OF ENERGY METHOD. Majdi Abbas, Ali Madadi Soroush, Khosravi Mohammad Hossein (2017)., Quid-Research Science and Technology, 2017(1), 2307-2319.

**30.** Flexural toppling failure in rock slopes: from theory to applications. Majdi Abbas, Amini Mehdi (2017)., International Journal of Mining and Geo-Engineering, 45(1), 21-32.

**31.** Finite Element based Response Surface Methodology to optimize segmental Tunnel lining. Rastbood Armin, Gholipour Yaghob, Majdi Abbas (2017)., Engineering Technology & Applied Science Research, 7(2), 1504-1514.

**32.** Stress Analysis of Segmental Tunnel Lining Using Artificial Neural Network. Rastbood Armin, Gholipour Yaghob, Majdi Abbas (2017)., Periodica Polytechnica-Civil Engineering, 2017(1), 1-11.

**33.** Determination of the height of destressed zone above the mined panel: An ANN model. Rezaie Mohammad, Hoseini Seyed Mohammad Faregh, Majdi Abbas, Najmoddin Iman (2017)., International Journal of Mining and Geo-Engineering, 51(1), 1-7.

**34.** Prediction of structural forces of segmental tunnel lining using FEM based artificial neural network. Rastbood Armin, Gholipour Yaghob, Majdi Abbas (2017)., International Journal of Mining and Geo-Engineering, 51(2), 24-32.

**35.** Effects of geo structural defects on analysis of flexural toppling failure in rock slopes. Majdi Abbas, Amini Mehdi (2016)., Journal of Transportation Research, 3(3), 209-222.

**36.** Investigation of moment-rotation relation in different joint types and evaluation of their effects on segmental tunnel lining. Majdi Abbas, Ajamzadeh Hamed, Nadimi Siavash (2016)., Arabian Journal of Geosciences, 9(7), 15.

**37.** Development of a time-dependent energy model to calculate the mining-induced stress over gates and pillars. Rezaei Mohammad, Hoseini Seyed Mohammad Faregh, Majdi Abbas (2015)., ROCK MECHANICS AND ROCK ENGINEERING, 7(3), 306-317.

**38.** Prediction of representative deformation modulus of longwall panel roof rock strata using Mamdani fuzzy system. Rezaei Mohammad, Asadizadeh Mostafa, Majdi Abbas, Hoseini Seyed Mohammad Faregh (2015)., International Journal of Mining Science and Technology, 25(1), 30-23.

**39.** Determination of Longwall Mining-Induced Stress Using the Strain Energy Method. Rezaei Mohammad, Hoseini Seyed Mohammad Faregh, Majdi Abbas (2015)., ROCK MECHANICS AND ROCK ENGINEERING, 48(6), 2421-2433.

**40.** A time-independent energy model to determine the height of destressed zone above the mined panel in longwall coal mining. Rezaei Mohammad, Hoseini Seyed Mohammad Faregh, Majdi Abbas (2015)., TUNNELLING AND UNDERGROUND SPACE TECHNOLOGY, 47(1), 81–92.

**41.** Application of genetic programming to predict the uniaxial compressive strength and elastic modulus of carbonate rocks. Beiki Morteza, Majdi Abbas, Dadi Givshad Ali (2013)., INTERNATIONAL JOURNAL OF ROCK MECHANICS AND MINING SCIENCES, 63(2), 169-159.

**42.** The Investigation of Segmental Tunnel Lining Design Methods. Majdi Abbas, Ajamzadeh Hamed, ظهیری گالشی مسعود, محمد منصورزاده (2013)., Road journal, 73(4), 376-359.

**43.** Prediction of unconfined compressive strength of rock surrounding a roadway using artificial neural network. Majdi Abbas, Mohammad Rezaei (2013)., NEURAL COMPUTING & APPLICATIONS, 23(4), 381–389.

**44.** Analysis of geo - structural defects in flexural toppling failure. Majdi Abbas, Mehdi Amini (2011)., INTERNATIONAL JOURNAL OF ROCK MECHANICS AND MINING SCIENCES, 48(2), 175-186.

**45.** Identification of well logs with significant impact on prediction of oil and gas reservoirs permeability using statistical analysis of RSE values. Majdi Abbas, Morteza Beiki, Atena Pirayehgar, Gholamreza Hosseinyar (2010)., Geoenergy Sicence and Engineering, 75(1,2), 91-99.

**46.** Genetic programming approach for estimating the deformation modulus of rock mass using sensitivity analysis by neural network. Morteza Beiki, Ali Bashari, Majdi Abbas (2010)., INTERNATIONAL JOURNAL OF ROCK MECHANICS AND MINING SCIENCES, 47(7), 1091-1103.

**47.** . Majdi Abbas, مسعود ظهیری, سیدرضا سجادی (2010)., Mining Engineering, 5(9), -.

**48.** Evolving neural network using a genetic algorithm for predicting the deformation modulus of a rock mass. Majdi Abbas, Morteza Beiki (2010)., INTERNATIONAL JOURNAL OF ROCK MECHANICS AND MINING SCIENCES, 47(2), 246-253.

**49.** Stability Analysis and the Stabilization of Flexural Toppling Failure. Mehdi Amini, Majdi Abbas, Ömer Aydan (2009)., ROCK MECHANICS AND ROCK ENGINEERING, 42(5), 751-782.

**50.** An investigation on mechanism of acid drain in heap leaching structures. Majdi Abbas, Mehdi Amini, Abotaleb Amini Chermahini (2009)., JOURNAL OF HAZARDOUS MATERIALS, 165(3), 1098-1108.

***Books***

**1.** A Guide Line to Design Road and Railway Tunnels Linings. Majdi Abbas (2015).

***Conferences***

**1.** Software development for determination of open pit- underground transition depth based on maximum Net Present Value. Alipenhani Behnam, Bakhshandeh Amnieh Hassan, Majdi Abbas (2024)., 12th Iranian Mining Engineering Conference, 21-22 February, Kashan, Iran.

**2.** Elastoplastic analysis of induced deformation of deep circular tunnels assuming blast induced damaged zone and hydraulic flow in surrounding mass. Karamipoor Saeed, Kargar Alireza, Majdi Abbas (2022)., 8th Iranian Rock Mechanics Conference, 10-12 May, Shahrood, Iran.

**3.** Review of empirical methods for determining the cavability of rock mass: Sensitivity analysis of effective parameters in determining the caving hydraulic radius. Alipenhani Behnam, Majdi Abbas, Bakhshandeh Amnieh Hassan (2022)., 8th Iranian Rock Mechanics Conference, 10-12 May, Tehran, Iran.

**4.** Risk analysis assessment of shield TBM tunnels using fuzzy topsis and analytic hierarchy process (AHP) techniques in mixed mode of soil and rock ground (A case study: southern extension of line 6, Tehran Metro). Samadi Hannan, Majdi Abbas (2021)., 9th. Iranian Mining Conference and 6th. International Congress of Mine and Mine Industries of, 21-23 February, Tehran, Iran.

**5.** A METHOD TO DETECT HYDRAULIC JACKING DURING ANISOTROPIC ROCK MASS GROUTING. Yazdani Mohammad, Majdi Abbas (2020)., 7th Iranian Rock Mechanics Conference (IRMC7), 20-21 November, Tehran, Iran.

**6.** NUMERICAL MODELING TO ESTIMATE THE REQUIRED DEPTH OF GROUT CURTAIN OF DAM. Majdi Abbas, Bali Hoseyn, Mohammadi Amin (2020)., 7th Iranian Rock Mechanics Conference (IRMC7) November, 2020, Faculty of Mining Engineering University of Tehran, Iran, 20-22 November, Tehran, Iran.

**7.** RECONNAISSANCE AND APPRAISAL OF EFFECTIVE PARAMETERS ON WASHOUT OF CEMENTITIOUS GROUT IN DAM FOUNDATION. Majdi Abbas, Mohammadi Amin, Bali Hoseyn (2020)., 7th Iranian Rock Mechanics Conference (IRMC7), 20-21 November, Tehran, Iran.

**8.** Analytical and numerical modeling of the beginning and expansion of cracks in the rocky environments using the energy method. Majdi Abbas, Ali Madadi Soroush, Khosravi Mohammad Hossein (2017)., The 4th International Conference on Advanced Technologies in Civil Engineering, Architecture and Urban planning, 6 October, Tehran, Iran.

**9.** Numerical analysis of mechanism of failure of stratified rocks with variable inclinations. Sarfraz Hassan, Majdi Abbas (2017)., Sarfaraz-Majdi-Int.Conf.on Contemporary; Civil-Architecture & Urban Planning Engineering of Iran, 16 August, Tehran, Iran.

**10.** Prediction of minimal rock mass grouting pressure based on Newton’s second law and principles of fracture mechanics. Majdi Abbas, Mirzazade Ali (2017)., American Rock Mechanics Association, 51st US Rock Mechanics / Geomechanics Symposium (ARMA), 25-28 June, San Francisco, United States.

**11.** Optimization of the Number of Segments per Ring and Its Effects on Segmental Tunnel Lining Behavior- Case Study: Line 4 Tehran Subway. Majdi Abbas, Ajamzadeh Hamed, Nadimi Siavash (2017)., American Rock Mechanics Association, 51st US Rock Mechanics / Geomechanics Symposium (ARMA), 25-28 June, San Francisco, United States.

**12.** INVESTIGATING THE INFLUENCE OF GEOMECHANICAL AND GEOMETRIC PARAMETERS OF TUNNEL ON GROUNDWATER INFLOW TO TUNNEL (CASE STUDY: KOHIN TUNNEL). Majdi Abbas, Ghadernejad Saleh, Ghazalian Farshad (2017)., 6th Iranian Rock Mechanics Conference (IRMC6), 14-15 February, Tehran, Iran.

**13.** Application of artificial neural networks for predicting the height of destressed zone above the mined panel in longwall coal mining. Majdi Abbas, Rezaei Mohammad (2013)., 47th US Rock Mechanics / Geomechanics Symposium, 23-26 June, United States.

**14.** evaluation of the length variation. حاجی زاده الهه, Majdi Abbas, Bahrodi Abbas, Farchei Manocher (2012)., 31th Earth sciences conference, 1-2 December, Tehran, Iran.

**15.** A comparison of rotary & ODEX drilling methods in alluvial deposits of Kheirabad earth dam of Iran for grouting purposes. Khosravi Mohammad Hossein, Majdi Abbas, Takemura Jiro, Thirapong Pipatpongsa (2012)., The Japanese Geotechnical Society, Geo-Kanto 2012, 5 October, Tokyo , Japan.

**16.** Study of the effect of initial hydrostatic and non-hydrostatic in fracturing. حاجی زاده الهه, Bahrodi Abbas, Majdi Abbas, قرشی منوچهر (2012)., 30th earth Sciences Conference, 20 February, Tehran, Iran.

**17.** An Appraisal of strength capacity of light-weight Scoria materials for light-weight structural concrete utilization. Majdi Abbas, Shekarchi Zadeh Mohammad, Jafari Ahmad, علی لیبر نیکلاس, ناصری عباس (2012)., First Iranian National Light-weight Concrete Conference, 15-16 February, Tehran, Iran.

**18.** Numerical evaluation of the influence of bolted-and non-bolted joints on segmental tunnel lining behavior in Line 4 Tehran subways. Majdi Abbas, H Ajamzadeh, K Emad (2010)., 6th Asian Rock Mechanics Symposium (ARMS6 the 2010 ISRM Sponsored International Symposium, 23-27 October, New Dehli, India.

**19.** Risk analysis and ground settlement sensitivity analysis in tunneling projects. Majdi Abbas, حیاتی محمد, روشنی امید (2010)., 3rd iranian Mining Conference (IRSME), 27-29 January, Yazd, Iran.

**20.** Prediction of rock fragmentation due to blasting in Gol\_E-Gohar iron mine using statistical analyses. ایمان عنایت الهی, اسدی احمد, Majdi Abbas (2010)., 3rd iranian Mining Conference (IRSME), 27-29 January, Yazd, Iran.

**21.** 3D Numerical modeling of Pillar recovery in room and pillar mining method at Tabas central coal mine, Iran (a case study)d. Majdi Abbas, قیامی رضا (2010)., 3rd iranian Mining Conference (IRSME), 27-29 January, Yazd, Iran.

**22.** Stability Analysis of Transformer Cavern and the Corresponding Bus Duct System at Siyah Bishe Pumped Storage Power Plant Using 3-Dimensional Numerical Methods. Majdi Abbas, K Emad, H Moghaddam Ali (2009)., The 9th International Conference: Analysis of Discontinuous Deformation New Developments and Applications, 25-27 November, Singapore, Singapore.

**23.** Comparative Studies of Physical and Numerical Modeling on Regular Discontinuities. Majdi Abbas, H Moghaddam Ali, K Emad (2009)., The 9th International Conference Analysis of Discontinuous Deformation New Developments and Applications, 25-27 November, Singapore, Singapore.

**24.** Numerical modelling of cement-based grout flow for grout curtain construction at Upper Gotvand Foundation by means of two-Phase approach. Majdi Abbas, گلی ابوذر, نظری محمد حسن, صراطی مهدی (2009)., Proceedings of the 1st International Conference on Concrete Technology, 6-7 November, Tehran, Iran.

**25.** Design of concrete lining of pressure tunnels at Upper Gotvan dam based on the external water pressure. Majdi Abbas, فله گری وحید, شریفی محسن, بنی هاشمی رسول (2009)., 6th National Engineering Geology and Environmental Conference of Iran, 7-8 October, Tehran, Iran.

**26.** Numerical analysis of grout performance of grout curtain at Gotvan-E-Olia Dam Foundation. Majdi Abbas, گلی ابوذر, نظری محمد حسن, اسدی سعید (2009)., Proceedings of the 1st International Conference on Concrete Technology, 7 October, Tehran, Iran.

**27.** An Experimental Study in Rock Slopes Against Dynamic Flexural Toppling Failure. Aydan O, Amini M, Majdi Abbas, K Ohkubo (2009)., The 7th. International Symposium on Rock Burst and Seismicity in Mines, 21-23 August, Dalian, China.

**HONORS and AWARDS**

**ACADEMIC POSITIONS**

**COURSES OFFERED**

**Advanced Underground Mining

Design and Planning Underground Spaces

Numerical Methods in Geomechanics

Geotechnics

Ground Improvement

Special Topics 1

Design and Planning Underground Spaces

Numerical Methods in Geomechanics

Underground Mining

Acquainting of Mining Engineering and Mining Industries

Advanced Underground Mining

Geotechnics

Ground Improvement

Underground Mining

Optimization Techniques of Underground Mining

Acquainting of Mining Engineering and Mining Industries

Numerical Methods in Geomechanics

Geotechnics

Ground Improvement

Special Topics 1

Acquainting of Mining Engineering and Mining Industries

Geotechnics

Ground Improvement

Special Topics 1

Practical Traning 2

Optimization Techniques of Underground Mining

Acquainting of Mining Engineering and Mining Industries

Numerical Methods in Geomechanics

Geotechnics

Ground Improvement

Practical Traning 1

Practical Traning 2

Numerical Methods in Geomechanics

Special Topics 1

Foundation

Geotechnics

Ground Improvement

Practical Traning 1

Practical Traning 2

Numerical Methods in Geomechanics

Foundation

Ground Improvement**

**LABORATORIES**