

Seyed Mohammad Razavian

(Faculty of Engineering – University of Kashan)

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Professional Summary:

Assistant Professor in Mineral Processing Engineering, University of Kashan

Education:

Ph.D. of Mineral Processing Engineering (*Sep 2009-Feb 2014*)

AmirKabir University, Tehran-IRAN

Thesis Title:

Effect of High Voltage Electric Pulses on Phosphate Ore Comminution

M.Sc. of Mineral Processing Engineering (*Sep 2002-Apr 2005*)

AmirKabir University, Tehran-IRAN

Thesis Title:

Steady-State Simulation of milling circuits using spreadsheets

B.Sc. of Mining Engineering (*Sep 1995-Aug 2000*)

Isfahan University of Technology, Isfahan-IRAN

Thesis Title:

Novel technology of iron ore beneficiation

Research Interests:

- **Mineral Processing Modelling, Simulation and Control**
- **Comminution (High voltage Electric pulse fragmentation)**
- **Mineral Processing Methods (Physical Separation)**

Teaching Experiences:

- **Basic of Mineral Processing and Lab.**
- **Mining Economy**
- **Research Methods and Presentation**
- **Minerals Application**
- **Comminution Engineering**
- **Mineral Processing Modelling, Simulation and Control**
- **Design and Analysis of Experiments**
- **Mass and Heat Transfer**
- **New Progresses in Mineral Processing Equipment**

SKILLS

- **Technical Software:** USIM PAC, MODSIM, COMSIM (Programmed by Myself), DX7, Minitab 18, WinCC, PLCS7 (300).
- **General Software:** Microsoft Office (Word, Excel, PowerPoint), MATLAB. VBA.
- **Operating PSA (Laser particle seizer: (Malvern 2000)**
- **Certificate of Participation:** 1-day workshop "Mill Liner Design Using MillTraj", 16 January 2017, Presented by: Prof. Malcolm Powell.
- **Mineral Processing Expert and Assistant of Iran Mineral Processing Research Center (IMPRC) 2006-now.**

Publications:

Journals Articles:

Mohammadi R., **Razavian, S.M.**, Abdollahzadeh, A.A., 2026, Numerical investigation of moist iron pellet feed grinding using DEM-MBD-PRM in a lab-scale HPGR: machine-response assessment and particle-resolution sensitivity, Canadian Metallurgical Quarterly.

Sfaram Jooneghani M., **Razavian, S.M.**, Ghorbannejad M., 2026, Modeling and Control of AG Mill Energy Consumption Based on Ore Hardness Distribution in a Large-Scale Iron Ore Plant, International Journal of Mining and Geo-Engineering, 60-2 pp.131-137.

Veshadi Arani , M. R., **Razavian S.M.**, 2025, Investigation of the Effect of Natural Salts on the Discharge Time of Remaining Voltage of Lithium-Ion Batteries during Crushing Stage, Journal of Mining and Environment.

Abolhasani A., Pachenari A., **Razavian S.M.**, Abolhasani M.M., 2022, Towards new generation of electrode-free conductive cement composites utilizing nano carbon black, Construction and Building Materials 323.

Sfaram Jooneghani M., **Razavian, S.M.**, Ghorbannejad M., 2021, Investigation of the Effect of Various Parameters on the Ore Hardness of Gole-Gohar's No. 1 Mine, Journal of Mineral Resources Engineering.

Banihashemi, S.R., Taheri. B., **Razavian, S.M.**, Soltani. F., 2020, Nitrophosphate Solution Purification by Calcium Precipitation as Gypsum, JOM.

Banihashemi, S.R., Taheri. B., **Razavian, S.M.**, Soltani F., 2019, Selective nitric acid leaching of rare earth elements from Ca and phosphate in a fluorapatite concentrate, JOM.

Hoseini Jirdehi. M., **Razavian, S.M.**, 2019, Development of Minerals Liberation Spectrum Simulator in Ball Mills, Journal of Mineral Resources Engineering, Vol. 4 (2), pp. 93-106.

Razavian, S.M., Rezai, B., Irannajad, M, 2015, Finite Element Method Based Simulation of Electrical Breakage of Iron-Phosphate Ore, PPMP Journal, Vol 51 (1), pp. 137-150.

Razavian, S.M., Rezai, B., Irannajad, M, Ravanji, M.H., 2015, Numerical Simulation of High Voltage Electric Pulse Comminution of Phosphate Ore, IJMST, Vol. 25 (3), pp. 473-478.

Razavian, S.M., Rezai, B., Irannajad, M., 2014, Investigation on Pre-weakening and Crushing of Phosphate Ore Using High Voltage Electric Pulses, *Advanced Powder Technology*, Vol. 25, pp. 1672-1678.

Razavian, S.M., Irannajad M., Farzanegan A., 2008, Simulation of Closed Ball Milling Circuits in Spread-Sheet using COMSIM Software, *Iranian Journal of Chemistry & Chemical Engineering*, Vol. 27 (2), pp. 77-86.

Irannajad M., Farzanegan A., **Razavian S.M.**, 2006, Spreadsheet-Based Simulation of Closed Ball Milling Circuits, *Minerals Engineering* Vol. 19, pp. 1495-1504.

Conferences Articles:

Esfaram jouneghani M., **Razavian S.M.**, Ghorbannejad M., Amiri Hoseini M., 2022, Investigating the possibility of determining the hardness of ores by Los Angeles test and its relationship with SPI test, 3th Iran Mining Technologies Conference, Yazd-Iran.

Rezaei K., **Razavian S.M.**, 2020, Steady-State Simulation and Optimization of Ball mill of Hamedan Iron Ore Complex, 8th Iran Mining Engineering Conference, Birjand-Iran.

Zolfaghari A., **Razavian S.M.**, Gharedaghi M., 2020, Optimization of Parameters Affecting Solid Particle sedimentation Process in Line 5,6,7 Thickeners of Gol-e-Gohar Company, 8th Iran Mining Engineering Conference, Birjand-Iran.

Zolfaghari A., **Razavian S.M.**, Gharedaghi M., 2020, Investigation of The Effect of Different Parameters on The Thickener Behavior of The Line 7 of Golgohar Concentrate Plant, 8th Iran Mining Engineering Conference, Birjand-Iran.

Esfaram jouneghani M., **Razavian S.M.**, Ghorbannejad M., Javedani N., 2020, Block No. 1 of Gol-e-gohar mine based on hardness using SPI test, 8th Iran Mining Engineering Conference, Birjand-Iran.

Rostamiraja M.A., Taheri B., **Razavian S.M.**, Ghorbannezhad M., 2020, Optimization of the 4th Gole-e-Gohar separation circuit based on the sensitivity of magnetic separation circuit to particles size, 8th Iran Mining Engineering Conference, Birjand-Iran.

Zolfaghari A., **Razavian S.M.**, Gharedaghi M., 2019, Investigating Effect of the Solid Percent of Feed of Thickener on Sedimentation Rate of Solid Particles: A Case Study of Waste Thickener in Line 7 Production of Concentrate of Gol-e-gohar Complex, 2th Iranian Conference of Green Mining&Mine Industry, Zanzan-Iran.

Karampoori Kolahkaj F, **Razavian, S.M.**, 2018, Kinetic design of Closed Ball mill-Hydrocyclone circuit to Produce Iron Ore Concentrate, 1th National conference of Modelling in Mining Engineering, Ghazvin- Iran.

Razavian, S.M., Karampoori Kolahkaj F., 2018, Kinetic design of Ball mill, Case-study; Golestan Iron Ore Mine, Ghamsar-Kashan, 36th National and the 3rd International Geosciences Congress of Iran, Tehran- Iran.

Banihashemi, S.R., Taheri. B., **Razavian, S.M.**, Soltani F., 2018, Selective nitric acid leaching of rare earth elements from Ca and phosphate in a fluorapatite concentrate, 36th National and the 3rd International Geosciences Congress of Iran, Tehran- Iran.

Razavian, S.M., Rezai, B., Irannajad, M, 2016, Effect of High Voltage Electric Pulse on Specific Rate of Breakage of Phosphate Ore, Proceeding of International seminar on mineral processing technology-innovations in mineral processing (MPT2016), Pune-India, pp. 381-390.

Razavian, S.M., Rezai, B., Irannajad, M, 2014, Comparison of the Weight and Volume Particle Size Analysis in Mineral Processing, proceeding of fifth Iran Mining Engineering Conference. Tehran-Iran, pp. 1469-1473.

Razavian, S.M., Rezai, B., Irannajad M, 2014, effect of High Voltage Electric Pulse on DOL and Beneficiation of Phosphate Ore, 32th National and the 1rd International Geosciences Congress of Iran, Tehran- Iran.

Razavian, S.M., Rezai, B., Irannajad M, Aram. M., 2012, Investigation of Relation between Static and Dynamic Media S.G. in Cyclone-DMS, Proceeding of 4st Iranian Mining Technologies conference, Tehran- Iran, pp. 79-85.

Razavian, S.M., Rezai, B., Irannajad M, 2012, Simulation of Rod Mill of Esfordi Phosphate Complex using USIMPAC Software, 1st Iranian Mining Technologies conference, Yazd- Iran.

M. Irannajad, A. Farzanegan, **S.M. Razavian**, 2006, Computer Simulation of Ball Mill-Hydrocyclone Closed Circuit in Spreadsheets, 6-7 June Sudbury Canada, MPMSC Proceeding, pp. 111-124.

M. Irannajad, A. Farzanegan, **S.M. Razavian**, 2006, Recent Research in Mathematical Modelling and Computer Simulation of Comminution Processes and Circuits, MPMSC Proceeding, 6-7 June, Sudbury Canada, pp.169-174.

Farzanegan A, Irannajad, M., **Razavian,S.M**, 2006, Spreadsheet-Based Simulation of Closed Ball Milling Circuits, Proceeding of Comminutio06 Conference, Australia, MEI online.

Irannajad, M, Farzanegan A,, **Razavian,S.M.**, 2005, Computer Simulation of Tumbling Ball Mills in Excel Spreadsheet, 7-11 Nov. Tehran- Iran.

Irannajad M., Farzanegan A., **Razavian S.M**, 2005, Simulation of Hydrocyclone in Excel spreadsheet, Proceeding of 1st Iran Mining Engineering Conference, Tarbiat Modarres Uni. Tehran- Iran, pp. 811-821.

Thesis;

1. Advisor: Master's Thesis entitled "Optimization of Comminution and Magnetic Separation Circuit of Gol-e-Gohar Concentrate Production Line 4 Using USIMPAC Simulation", Student: Mohammad Amin Rostami Raja, October 2016, University of Kashan.
2. Supervisor: Master's Thesis entitled "Ball Mill Modeling Using Mineral Grade Distribution Function", Student: Mehdi Hosseini Jirodehi, July 2017, University of Kashan.
3. Supervisor: Master's Thesis entitled "Kinetic Design of Comminution Circuit for Golsatan Qamsar Iron Ore, Kashan", Student: Fatemeh Karampouri Kolahkaj, March 2018, University of Kashan.
4. Supervisor: Master's Thesis entitled "Recovery of Rare Earth Elements from Asforudi Phosphate Concentrate", Student: Seyed Ramin Banihashemi, November 2017, University of Kashan.
5. Supervisor: Master's Thesis entitled "Feasibility Study on Gold and Copper Recovery from Sariqash Simple Cu-Au Oxide Ore", Student: Samira Sadat Mousavifar, February 2019, University of Kashan.
6. Supervisor: Master's Thesis entitled "Investigation of the Effect of Comminution on Aggregate Size and Shape and Concrete Compressive Strength Using Image Processing", Student: Soheila Shokri, February 2019, University of Kashan.
7. Supervisor: Master's Thesis entitled "Investigation of Key Parameters in Tailings Dewatering Operations within Tailings Thickeners of Production Lines 5, 6, and 7 at Gol-e-Gohar Mining and Industrial Co.", Student: Ali Zolfaghari, January 2020, University of Kashan.
8. Supervisor: Master's Thesis entitled "Kinetic Simulation of Primary Ball Mill in Hamedan Iron Ore Complex", Student: Kamran Rezaei, July 2020, University of Kashan.

9. Supervisor: Master's Thesis entitled "Investigation of Work Hardness / Hardness of Feed Sent to Gol-e-Gohar Plants", Student: Milad Asform Jounghani, July 2020, University of Kashan.
10. Advisor: Master's Thesis entitled "Investigation of the Effect of Nano-Carbon Black on Mechanical Properties and Electrical Conductivity of Concrete", Student: Alireza Abolhassani, March 2021, University of Kashan.
11. Supervisor: Master's Thesis entitled "Pretreatment of Golsatan Iron Ore (Kashan) via Microwave Irradiation and Its Effect on Comminution Circuit Design", Student: Farhad Soltani Voshareh, October 2021, University of Kashan.
12. Supervisor: Master's Thesis entitled "Investigation of the Effect of Microwaves on Fracture and Magnetic Properties of Hematite Ore", Student: Fatemeh Adineh, March 2023 [۲ March 2022], University of Kashan.
13. Supervisor: Master's Thesis entitled "Numerical Simulation of Microwave Effects on Iron Ore Comminution", Student: Hamidreza Ghaibi, February 2023, University of Kashan.
14. Supervisor: Master's Thesis entitled "Investigation of the Effect of Natural Salt Types and Concentrations on the Discharging Process of Lithium-Ion Batteries", Student: Mohammadreza Voshadi Arani, April 2023, University of Kashan.
15. Advisor: Master's Thesis entitled "Performance Investigation and Effect of Influencing Parameters on Iron Ore Comminution in the Secondary Crushing Circuit of East Kaveh Sangan Steel Co.", Student: Behzad Zanganeh, August 2023, University of Birjand.
16. Supervisor: Master's Thesis entitled "Optimization of Grinding Circuit in Hamedan Iron Ore Complex", Student: Mohsen Cheraghi, October 2024, University of Kashan.
17. Supervisor: Master's Thesis entitled "Investigation of Collector Type and Composition Effects on Copper Recovery in the Flotation Circuit of Jian Copper Mining Complex", Student: Faramarz Mehraji, February 2025, University of Kashan.
18. Supervisor: Master's Thesis entitled "Upgrading Iron Grade and Decreasing Sulfur in Scavenger Concentrate of Esmaloun Plant via Reverse Flotation", Student: Mehrad Ahmadi, February 2025, University of Kashan.
19. Supervisor: Master's Thesis entitled "Feasibility Study of Sulfur Removal from Iron Concentrate Sample of Mobarakeh Steel Company", Student: Zahra Alimohammadi, September 2025, University of Kashan.

20. Advisor: Master's Thesis entitled "Evaluation of the Feasibility of Using Processed Wastes from the Rosewater Distillation Industry as a Cement Replacement", Student: Mohammadreza Karimian, May 2026, University of Kashan.
21. Supervisor: Master's Thesis entitled "Redesign and Optimization of the Comminution Circuit for Esmaloun Iron Ore Plant No. 2", Student: Hamid Yousefi, July 2026, University of Kashan.
22. Supervisor: Master's Thesis entitled "Investigation of the Effect of Baking and Annealing Process Conditions on the Thermodynamic and Tribological Properties of Semi-Metallic Brake Pads", Student: Ali Hallaj Mofard, October 2026, University of Kashan.

SELECTED RESEARCH EXPERIENCE

- Guidelines for mineral identification and liberation in mineral processing
- Guidelines for conducting mineral processing tests at various scales
- Guidelines for tailings and waste disposal in mineral processing plants
- Environmental guidelines for mining activities
- Pilot-scale comminution and magnetic separation tests and regrinding circuit design for Kabar concentrate – Jalalabad oxidized iron ore
- Mineral processing investigation on preliminary concentrate of Gol-e-Gohar iron ore
- Comminution circuit design tests for Ardakan glass sand ore
- Pilot-scale comminution and classification tests on Yazd alumina and chromite samples
- Comminution tests for Agh Darreh gold sample
- Design and execution of column flotation tests on Nakhlak lead ore
- Sedimentation and filtration tests on tailings and concentrate samples of Jalalabad iron ore
- Low-intensity dry and wet magnetic separation tests on Jalalabad iron ore sample
- Design and execution of processing tests for the kaolin sample of East Silicate Company
- Design and execution of heavy media separation tests on Vonarch manganese sample, Qom

- Pilot-scale design and testing for fines reduction in the grinding circuit of Asforudi Phosphate Complex
- Simulation, design, and implementation of pilot-scale comminution and beneficiation circuit for Sangen iron ore aiming to produce the initial feed required for pelletizing plant design
- Pilot-scale design and testing for the beneficiation of iron ore from Jahannemo Industrial and Mining Company
- Design and fabrication of a laboratory-scale mineral comminution device using high-voltage electrical pulses
- Consulting on the design and fabrication of a 5 t/h heavy media cyclone and its installation and commissioning in Tabas Fluorine Mine
- Research project entitled “Laboratory Feasibility Studies on the Processing of Tang-e Zagh Iron Ore Mine with Acceptable Recovery and Grade”, Client: Omran Moman Chabahar Industrial and Mining Company, Project Collaborators: Dr. Abdollahzadeh, Mr. Taheri, and Mr. Javadi, 2016–2018.
- Applied project entitled “Investigation of the Comprehensive Development Plan for High-Voltage Electrical Comminution Method with the Aim of Localization and Development in Iran”, 2024, Client: Iranian Minerals Processing Research Center (IMPRC).