Stanford

Amir Eskanlou

Postdoctoral Scholar, Earth and Planetary Sciences

Curriculum Vitae available Online Resume available Online

Bio

BIO

Amir is a postdoctoral scholar at Stanford Mineral-X. With 15 years of research and industry experience, his background includes the development and optimization of mineral processing flowsheets for copper, phosphate, graphite and rare earth elements (REEs) from primary and secondary resources. At Stanford, he conducts research related to various aspects of critical minerals processing, including AI-driven reagent discovery, uncertainty quantification, circuit design, and optimization of energy and water consumption.

HONORS AND AWARDS

- Henry DeWitt Smith Graduate Award, SME (2020)
- Lewis E. and Elizabeth W. Young Award, SME (2022)
- Raja V. and Geetha V. Ramani Graduate Student Award, SME (2023)
- Charles B. Manula Memorial Scholarship, Penn State (2022, 2023)
- Fuel Science Award, Penn State (2023)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Member, American Institute of Chemical Engineers (2025 - present)
- Member, Society for Mining, Metallurgy, and Exploration (2018 - 2025)

PROFESSIONAL EDUCATION

- Ph.D., Penn State , Energy and Mineral Engineering (2024)
- Ph.D. Minor, Penn State , Computational Materials Science (2024)
- M.S., West Virginia University , Mineral Processing (2021)
- M.S., Tarbiat Modares University , Mineral Processing (2016)
- B.S., Bahonar University , Mineral Engineering (2013)

STANFORD ADVISORS

- Jef Caers, Postdoctoral Faculty Sponsor

LINKS

- Scholar: https://scholar.google.com/citations?user=0yF--LAAAAAJ&hl=en
- LinkedIn: https://www.linkedin.com/in/amir-eskanlou-31191a80/
- Github: https://github.com/amireskanlou

Research & Scholarship

RESEARCH INTERESTS

- Data Sciences
- Research Methods

PROJECTS

- AI-Driven Discovery and Design of Selective Reagents and Ligands for Critical Minerals Extraction
- Improving Phosphate Recovery Using Process Mineralogy of Flotation Tailings
- AI-Driven Optimization under Uncertainty for Mineral Processing (Collaboration)

Publications

PUBLICATIONS

- **Gaussian process regression for modeling computational and experimental mineral processing data** *MINERALS ENGINEERING*
  Eskanlou, A., Yin, D., Caers, J.
  2026; 237
- **Optimizing flotation separation of fluorapatite from Florida waste clay using a multiscale approach** *APPLIED SURFACE SCIENCE*
  Eskanlou, A., Arnold, B. J., Foucaud, Y., Badawi, M., Dzade, N. Y.
  2024; 662
- **Stability of gold-polysulphide species: a DFT insight** *BULLETIN OF MATERIALS SCIENCE*
  Chegeni, M., Chegeni, M., Eskanlou, A., Soltani, F., Darabi, H., Boostanipour, R.
  2023; 46 (2)
- **De-sliming followed by froth flotation for the recovery of phosphorus and enrichment of rare earth elements from Florida waste clay** *RESOURCES CONSERVATION AND RECYCLING*
  Eskanlou, A., Huang, Q., Zhang, P.
  2022; 178
- **Effect of Al³⁺ and Mg²⁺ on the flotation of fluorapatite using fatty- and hydroxamic-acid collectors - A multiscale investigation** *APPLIED SURFACE SCIENCE*
  Eskanlou, A., Huang, Q., Foucaud, Y., Badawi, M., Romero, A. H.
  2022; 572
- **The significance of positive and negative inertial forces in Particle-Bubble interaction and their role in the general flotation kinetics model** *MINERALS ENGINEERING*
  Hassas, B., Kouachi, S., Eskanlou, A., Bouhenguel, M., Celik, M. S., Miller, J. D.
  2021; 170
- **Phosphatic waste clay: Origin, composition, physicochemical properties, challenges, values and possible remedies-A review** *MINERALS ENGINEERING*
  Eskanlou, A., Huang, Q.
  2021; 162
- **Determination of the mass transfer rate constant in a laboratory column flotation using the bubble active surface coefficient** *MINERALS ENGINEERING*
  Eskanlou, A., Huang, Q., Chegeni, M., Khalesi, M., Abdollahy, M.
  2020; 156
- **Modeling the bubble loading based on force balance on the particles attached to the bubble** *COLLOIDS AND SURFACES A-PHYSICOCHEMICAL AND ENGINEERING ASPECTS*
  Eskanlou, A., Chegeni, M., Khalesi, M., Abdollahy, M., Huang, Q.
  2019; 582

- **Investigation of trajectory and rise velocity of loaded and bare single bubbles in flotation process using video processing technique** *SEPARATION SCIENCE AND TECHNOLOGY*
  Eskanlou, A., Khalesi, M., Mirmogaddam, M., Chegeni, M., Hassas, B.
  2019; 54 (11): 1795-1802

- **Bubble loading profiles in a flotation column** *PHYSICOCHEMICAL PROBLEMS OF MINERAL PROCESSING*
  Eskanlou, A., Khalesi, M., Abdollahy, M.
  2018; 54 (2): 355-362

- **Estimation of flotation rate constant and collision efficiency using regression and artificial neural networks** *SEPARATION SCIENCE AND TECHNOLOGY*
  Eskanlou, A., Shahbazi, B., Hassas, B.
  2018; 53 (2): 374-388