

CURRICULUM VITAE



Name: Vladi Frid

Date & place of birth: 31.05.1962, Saint Petersburg, Russia

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GoogleScholar (hi: 25, i10: 37, Citations: 2205), RGScore (Research Interest Score: 891.7, Citations: 1740, hi: 23), WoS (hi: 20, Citations: 1289), Scopus (Citations: 1644, hi: 22)

1. Academic education

1992-1994 Post Doctoral Research Fellow. Ben Gurion University of the Negev, Israel.
Advisers: Prof. Dov Bahat and Prof. Avinoam Rabinovitch.

1985-1990 Ph.D. in Rock Physics. All - Union Mining Geomechanics and Mine Surveying Science Research Institute (VNIMI). Dissertation title: Rockburst forecast by electromagnetic radiation induced by fracture - diploma with top distinction, the novelty of scientific works is verified by 9 inventions (Russian patents) Adviser: Prof. Proskuryakov V.

1979-1985 M.Sc. in Rock Physics. Saint-Petersburg Mining Univ., Dissertation title: Rock pressure control on ozocerite deposit. - diploma with top distinction, the novelty of scientific works is verified by 2 inventions (Russian patents). Adviser: Prof. Borisov, A.

2. Academic Employment

Since 2019 Senior Lecturer. Building Engineering Department, SCE - Sami Shamoon College of Engineering, Israel.

2016-2018 Lecturer. Building Engineering Department, SCE - Sami Shamoon College of Engineering, Israel.

1994-2005 Researcher, Senior Researcher, Dept. of Geological and Environmental Sciences Ben Gurion University of the Negev, Israel.

2002-2002 Lecturer. Negev Academic College of Engineering (RA), Dept. of Building and Architecture, Beer Sheva, Israel

3. Industrial Engineering Experience

2006-2017 Geotechnical Dept - Chief of Geophys. Dept, Isotop Ltd (engineering soil and rock mechanics, applied geophysics including acoustic and electromagnetic methods), Israel.

1997-2004 Geologist-consultant, Hasin Esh Industry Ltd, Israel

1995-1996 Geologist-consultant, Negev industrial minerals Ltd, Israel

1985-1991 Researcher, All - Union Mining Geomechanics and Mine Surveying
Research Institute, Russia (Soil and Rock mechanics)

4. Academic research and development activities

4.1. Previous research and development activities

- 2012-2015 Research team leader (Isotop)^{PI} in the frame of international investigation (European Research Agency - FP7-PEOPLE-2011-IAPP - Marie Curie Industry-Academia Partnerships and Pathways, grant agreement No. 284544 (PARM2), partners involved Univ. Loughborough (UK), Univ. Aberystwyth (UK), Univ. Liverpool and Rzeszow University of Technology (Poland) (1 peer reviewed paper).
- 2015 Investigation of highway pavement quality and pavement layers thickness of Israeli highways (6500 km). (Grant of National transport infrastructure company)
- 2013 Investigation of ballast, sub-ballast and sub-grade layers of the entire net of Israeli railways (1000 km). International project in cooperation with IDS (Italy) and Terra (Swiss). (Grant of Israel Railways company)
- 2010 Comprehensive soil investigation of Haifa and Ashdod sea ports including computer design of 3D model of subsurface soil structure of both sea ports (Grant of Israel Ports company). (1 peer reviewed paper).
- 2006-2017 Dozens of engineering and environmental soil and rock investigation including underground openings, karsts and sinkholes finding, landfill descriptions, economical mineral prospecting, archaeological studies (Grants of Israeli and international soil consultants) (4 peer reviewed papers).
- 1994-2005 Grants^{CI} of Israeli Ministry of Infrastructure and Israeli Academy of Science. (23 peer reviewed papers).

4.2. M.Sc. and Ph.D. Thesis Students

- 2022 - M. Tzibulsky (M.Sc. degree in Green Engineering). The study of chert rocks with an emphasis on their use in the Israeli industry.
- 2022 - M. Greenberg (M.Sc. degree in Green Engineering). Classification of marine soils by remote sensing using acoustic waves and spectral signature by machine learning. With Dr. Uri Kushnir.
- 2023 - S. Das (Post-doctorate) Fracture-induced electromagnetic radiation for earthquake forecast.

4.3. Present and future research and development activities

- Since 2021 Physical properties of chert rock
- Since 2021 Soil characterization at the sea bottom by geophysical methods
- Since 2016 Development of scientific foundations for induced man-induced and natural seismicity decrease during mining and geotherm procedures.
- Since 1985 Fracture induced electromagnetic radiation

4.4. Other relevant activities-invited expertise

- 2018 Evaluation of the overall results of the TAMER - FP7-PEOPLE-2013-IRSES project number 610547: Trans – Atlantic Micromechanics Evolving Research "Materials containing inhomogeneities of diverse physical properties, shapes and orientations". Aberystwyth University, UK.
- 2016 Assessment of Centers for Research, Education and Innovation of the Skolkovo Institute for Science and Technology (Skoltech).

4.5. Invited lectures

- 2023 Fracture-Induced Electromagnetic Radiation (FEMR) from laboratory and mining to field measurements: 30 years of history. International Workshop: Geophysics to Study Natural Hazards. IISERB, India. 1.7.23.
- 2022 Rockburst forecast by fracture-induced electromagnetic and acoustic radiation. University of Beijing (China).
- 2020 The origin of fracture-induced electromagnetic radiation - Univ. West Attica (Greece).
- 2019 The mechanism and features of fracture-induced electromagnetic radiation. Aberystwyth University (UK).

4.6. International collaboration

- 2022-2025 Joint research with **Prof. G. Mishuris** (Univ. Aberystwyth, UK), in the frame of Horizon Grant ID: 101008140.
- 2021- Up to date Joint research with **Prof. A. Movchan** (Univ. Liverpool, UK), on Modeling of seismic assessment for large geological systems.
- 2018- Up to date Joint research with **Prof. S. Potirakis** (West Attika Univ., Greece) on Fracture-induced Electromagnetic radiation and Acoustic emission induced by sand liquefaction.
- 2018 Joint research with **Prof. G. Mishuris** (Univ. Aberystwyth, UK) on Geothermal/wastewater deposits: a study on induced seismicity diminishing.
- 2012-2015 Joint research with **Prof. G. Mishuris** (Univ. Aberystwyth, UK), **V. Silbersmith** (Univ. Loughborough, UK), **Prof. A. Movchan** (Univ. Liverpool, UK) in the Frame of FP7 Grant.

5. Grants and awards

5.1. Grants

- 2023- **V. Frid^{PI}** (SCE – Sami Shamoan College of Engineering) - Wohl Clean Growth Alliance Grant (Grant from British Council) "Modelling of fluid-driven seismicity in production of green thermal energy", with **Prof. A. Movchan** (Univ. Liverpool, UK). (£24,860)
- 2022-2025 **V. Frid^{PI}** (SCE – Sami Shamoan College of Engineering) - Factorization techniques for matrix-functions: Developing theory, numerical methods and impactful applications" (EffectFact) Horizon

ID: 101008140. Coordinator **Prof. G. Mishuris** (Univ. Aberystwyth, UK).
(€73, 600)

- 2022-2025 **V. Frid^{PI}** (SCE – Sami Shamoon College of Engineering) - The study of chert rocks with an emphasis on their use in the Israeli industry Grant of Ministry of Energy of Israel. (473,505NIS)
- 2020-2021 **V. Frid^{PI}** (SCE – Sami Shamoon College of Engineering) - Acoustic emission caused by soil liquefaction (three-axis dynamic study) - Grant of Ministry of Construction and Housing of Israel (90,000NIS).
- 2020-2023 **V. Frid^{PI}** (SCE – Sami Shamoon College of Engineering) - Electromagnetic radiation induced by rock fracture in the vicinity of Dead Sea, Grant of SCE (90,000NIS).
- 2017-2020 **V. Frid^{PI}** (SCE – Sami Shamoon College of Engineering) - Changes of asphalt dielectric properties due to temperature and moisture variation, Grant of SCE (110,000NIS).
- 2018 **V. Frid^{PI}** (SCE – Sami Shamoon College of Engineering) - guest, G. Mishuris (Aberystwyth University, UK.) - host. Geothermal/waste water deposits: study on induced seismicity diminishing. UK - Israel Science Lectureship Scheme 2018/19 , Grant from British Council. (£2000)
- 2018-2022 **V. Frid^{PI}** Erasmus +, with Prof. Stelios M. Potirakis, Dept. of Electronics Engineering. The University of West Attica. - successful application.

5.2. Proposals submitted (a response - not received yet)

- 2023 **V. Frid^{PI}** Crushed chert gravel vs. basalt aggregate - a comprehensive comparison study of matching for the asphalt and granular layers in the roads' pavement. Grant of Ministry of Innovation, Science and Technology.

6. List of publications

6.1. Peer-reviewed papers

- * 1. **Frid, V^{PI}**, Rabinovitch, A^C., Bahat, D^C., Kushnir, U^C. 2023. Fracture electromagnetic radiation induced by a seismic active zone (in the vicinity of Eilat City, Southern Israel). Remote sensing. 15, 3639. <https://doi.org/10.3390/rs15143639>. (IF=5.0, CITESCORE 7.9, H-index 168, JCR - **Q1** (Geosciences, Multidisciplinary)/CiteScore - **Q1** (General Earth and Planetary Sciences)).
- * 2. Kushnir, U^{PI}., **Frid, V^{PI}**. 2023. Spectrum-based logistic regression modeling for the sea bottom soil categorization. Appl. Sciences. 13(14), 831, 2023051212. <https://doi.org/10.3390/app13148131>. (IF=2.9, CITESCORE 4.5, H-index 101, JCR - **Q2** (Engineering, Multidisciplinary)/CiteScore - **Q1** (General Engineering)).
- * 3. Tzibulsky, M^S., **Frid, V^{PI}**. 2023. Features of the Physical-Mechanical Properties and Chemical Composition of Chert Gravels. Minerals 13, 455. <https://doi.org/10.3390/min13040455>. (IF=2.5, CITESCORE 3.9, H-index 50, JCR - **Q2** (Mining & Mineral Processing)/CiteScore - **Q2** (Geology)).

- * 4. Frid A^S., **Frid, V^{PI}**. 2023. Moisture effect on asphalt dielectric permittivity: simulating, sensitivity analysis and experimental validation. *International Journal of Pavement Research and Technology*. <https://doi.org/10.1007/s42947-023-00282-2>. (IF=0.61, CITESCORE 4.1, H-index 37, JCR - Q2 (Civil and Structural Engineering)/CiteScore - Q2 (Civil and Structural Engineering)). Cited by 1 (Google Scholar & Web of Science).
- * 5. Kushnir, U^{PI}., **Frid, V^{PI}**. 2022. Spectral acoustic fingerprints of sand and sandstone sea bottoms. *Journal of Marine Science and Engineering* 10, 1923. <https://doi.org/10.3390/jmse10121923>. (IF=2.9, CITESCORE 3.7, H-index 39, JCR - Q1 (Engineering, Marine)/CiteScore - Q2 (Ocean Engineering)). Cited by 1 (Google Scholar & Web of Science).
- * 6. **Frid, V^{PI}**., Shulov S^C. 2022. Acoustic emission induced by sand liquefaction during vibration loading. *Scientific reports*. 12, 16881 2022. <https://doi.org/10.1038/s41598-022-21257-6>. (IF=4.9, CITESCORE 7.5, H-index 282, JCR - Q1 (Multidisciplinary)/CiteScore - Q1 (Multidisciplinary)). Cited by 2 (Google Scholar & Web of Science).
- * 7. Li H^C., Lei Y^{PI}., Wang E^{PI}., **Frid, V^{PI}**., Li, D^C., Liu X^C., Ren X^C. Characteristics of Electromagnetic Radiation and the Acoustic Emission Response of Multi-Scale Rock-like Material Failure and Their Application. *Foundations* 2022, 2(3), 763-780; <https://doi.org/10.3390/foundations2030052>. Cited by 3 (Google Scholar).
- * 8. Movchan^{PI} I.B., Yakovleva A.A^{PI}., **Frid, V^{PI}**., Movchan A.B^{PI}., Shaygallyamova Z.I^C. 2022. Modeling of seismic assessment for large geological systems. *Philosophical Transactions of the Royal Society A* 380(2231), 2022. <https://doi.org/10.1098/rsta.2021.0393>. (IF= 5.0, CITESCORE 8.1, H-index 183, JCR - Q1 (Engineering)/CiteScore - Q1 (Engineering)). Cited by 2 (Google Scholar).
- * 9. Daniliev S^{PI}., Danilieva N^{PI}., Mulev S^C., **Frid, V^{PI}**. Integration of Seismic Refraction and Fracture-Induced Electromagnetic Radiation Methods to Assess the Stability of the Roof in Mine-Workings. *Minerals* 2022, 12, 609. <https://doi.org/10.3390/min12050609>. (IF=2.5, CITESCORE 3.9, H-index 50, JCR - Q2 (Mining & Mineral Processing)/CiteScore - Q2 (Geology)). Cited by 2 (Google Scholar & Web of Science).
- * 10. **Frid, V^{PI}**., Potirakis S.M^C., Shulov S^C. 2021. Study of Static and Dynamic Properties of Sand under Low Stress Compression. *Applied Sciences*. MDPI, 11, 3311. <https://doi.org/10.3390/app11083311>. (IF=2.9, CITESCORE 4.5, H-index 101, JCR - Q2 (Engineering, Multidisciplinary)/CiteScore - Q1 (General Engineering)). Cited by 4 (Google Scholar) and Cited by 3 (Web of Science).
- * 11. **Frid, V^{PI}**., Wang E.Y^C., Mulev S.N^C., Li D.X^C. 2021. The Fracture-Induced Electromagnetic Radiation - Approach and Protocol for the Stress State Assessment for Mining. *Geotechnical and Geological Engineering*; <https://doi.org/10.1007/s10706-021-01682-6>. (IF=1.9, CITESCORE 4.5, H-index 71, JCR - Q1 (Architecture)/CiteScore - Q1 (Architecture)). Cited by 9 (Google Scholar & Web of Science).

- * 12. **Frid, V^{PI}**, Potirakis S.M^C, Shulov S^C. 2020. Effect of Soil Loading and Unloading on its Acoustic Behavior . Proceedings 67, 20; <https://doi.org/10.3390/ASEC2020-07516>. Cited by 2 (Google Scholar).
- * 13. **Frid, V^{PI}**, Rabinovitch A^C, Bahat D^C. 2020. Seismic moment estimation based on fracture induced electromagnetic radiation. Engineering Geology 274 105692 <https://doi.org/10.1016/j.enggeo.2020.105692>. (IF=7.4, CITESCORE 12, H-index 164, JCR – **Q1** (Geology)/CiteScore - **Q1** (Geology). Cited by 8 (Google Scholar) and Cited by 7 (Web of Science).
- * 14. **Frid, V^{PI}**, Rabinovitch A^C, Bahat D^C. 2020. Earthquake forecast based on its nucleation stages and the ensuing electromagnetic radiations. Physics Letters A, 384(4), 126102, <https://doi.org/10.1016/j.physleta.2019.126102>. (IF=2.6, CITESCORE 4.9, H-index 182, JCR – **Q2** (Physics and Astronomy)/CiteScore - **Q1** (General Physics and Astronomy). Cited by 10 (Google Scholar) and Cited by 8 (Web of Science).
15. Rabinovitch A^{PI}, **Frid, V^{PI}**, Bahat D^C. 2018. Use of electromagnetic radiation to predict earthquakes. Geological Magazine. 155, 992-996. (IF=2.3, CITESCORE 4.7, H-index 91, JCR – **Q1** (Geology)/CiteScore - **Q1** (Geology). Cited by 17 (Google Scholar) and Cited by 15 (Web of Science).
16. **Frid, V^{PI}**, Sharabi I^C, Frid M^C, Averbakh^C A. 2017. Leachate detection via statistical analysis of electrical resistivity and induced polarization data at a waste-disposal site (Northern Israel). Environmental Earth Sciences. 76, 233-250 (IF=3.1, CITESCORE 5.2, H-index 141, JCR – **Q2** (Earth surface processes)/CiteScore - **Q1** (Geology). Cited by 19 (Google Scholar) and Cited by 13 (Web of Science).
17. Rabinovitch A^{PI}, **Frid, V^{PI}**, Bahat D^{PI}. 2017. Directionality of electromagnetic radiation from fractures. Intern. J. Fracture. 204(2), 239-244. (IF=2.7, CITESCORE 4.4, H-index 106, JCR – **Q2** (Computational mechanics)/CiteScore - **Q1** (Computational Mechanics). Cited by 35 (Google Scholar) and Cited by 27 (Web of Science).
18. **Frid, V^{PI}**, Averbakh A^C, Frid M^C, Doudkinski D^C, Liskevich G^C. 2017. Statistical Analysis of Resistivity Anomalies Caused by Underground Caves. Pure. Appl. Geoph. 174(3), 997-1012. (IF=2.1, CITESCORE 4.8, H-index 101, JCR – **Q2** (Geochemistry and Petrology)/CiteScore – **Q2** (Geophysics). Cited by 12 (Google Scholar) and Cited by 9 (Web of Science).
19. **Frid, V^{PI}**, Goldbaum J^S, Rabinovitch A^C, Bahat. D^C. 2011. Time-dependent Benioff strain release diagrams. Phil. Mag. 90(12), 1693-1704. (IF=2.1, CITESCORE 3.5, H-index 100, JCR – **Q3** (Condensed matter physics)/CiteScore – **Q2** (Condensed matter physics). Cited by 6 (Google Scholar) and Cited by 6 (Web of Science).
20. **Frid, V^{PI}**, Doudkinski D^C, Liskevich G^C, Shafran E^C, Averbakh A^C, Korostishevsky N^C, Prihodko L^C. 2010. Geophysical-geochemical investigation of fire-prone landfills. Environ. Earth. 60(4), 787-798. (IF=3.1, CITESCORE 5.2, H-index 141, JCR – **Q2** (Earth surface processes)/CiteScore - **Q1** (Geology). Cited by 35 (Google Scholar) (IF=3.1,

CITESCORE 5.2, H-index 141, JCR – **Q2** (Earth surface processes)/CiteScore - **Q1** (Geology) Cited by 35 (Google Scholar) and Cited by 19 (Web of Science).

21. **Frid, V^{PI}**, Goldbaum J^S., Rabinovitch A^{PI}., Bahat D^{PI}. 2009. Electric polarization induced by mechanical loading of Solnhofen limestone. *Phil. Mag. Lett.* 89, 453-463 (IF=1.1, CITESCORE 1.9, H-index 69, JCR – **Q3** (Condensed matter physics)/CiteScore – **Q3** (Condensed matter physics). Cited by 6 (Google Scholar) and Cited by 8 (Web of Science).
22. Howard, C.B^{PI}., Bahat, D^{PI}., Rabinovitch^{PI}., **Frid, V^{PI}**. 2009. Anisotropic thermal and acoustic properties of heated satin spar. *Israel J. Earth Sciences* 58, 1-11.
23. **Frid, V^{PI}**., Liskevich G^C., Doudkinski D^C., Korostishevsky N^C. 2008. Evaluation of landfill disposal boundary by means of electrical resistivity imaging. *Environ. Geol.* 53, 1503-1508 (IF=1.1, CITESCORE 1.9, H-index 69, JCR – **Q3** (Condensed matter physics)/CiteScore – **Q3** (Condensed matter physics). Cited by 51 (Google Scholar) and Cited by 35 (Web of Science).
24. Bahat D^{PI}., Rabinovitch A^{PI}., **Frid, V^{PI}**. 2008. Correlation of plume morphologies on Joint surfaces with their fracture mechanic implications. *Geol. Mag.* 145(5), 733-744. (IF=2.3, CITESCORE 4.7, H-index 91, JCR – **Q1** (Geology)/CiteScore - **Q1** (Geology). Cited by 2 (Google Scholar) and Cited by 2 (Web of Science).
25. Doudkinski D^{PI}., **Frid, V^{PI}**., Liskevich G^C., Prihodko L^C., Zlotnikov R^C. 2007. Towards the digital indexation of USCS classification: case study in Israel. *Engineer. Geol.* 95, 48-55 (IF=7.4, CITESCORE 12, H-index 164, JCR – **Q1** (Geology)/CiteScore - **Q1** (Geology). Cited by 3 (Google Scholar) and Cited by 2 (Web of Science).
26. Rabinovitch A^{PI}., **Frid, V^{PI}**., Bahat D^{PI}. 2007. Surface oscillations — A possible source of fracture induced electromagnetic radiation. *Tectonophysics* 431, 15–21 (IF=2.9, CITESCORE 5.8, H-index 192, JCR – **Q1** (Earth-Surface Processes)/CiteScore - **Q1** (Earth-Surface Processes). Cited by 152 (Google Scholar) and Cited by 100 (Web of Science).
27. Bahat D^{PI}., Rabinovitch A^{PI}., **Frid, V^{PI}**., et al. 2007. Cycles of sub-critical tensile and shear alternating fracturing in diminishing dimensions, under tensile loading. *Intern. J. Fract.* 148(4), 281-290 (IF=2.7, CITESCORE 4.4, H-index 106, JCR – **Q2** (Computational mechanics)/CiteScore - **Q1** (Computational Mechanics). Cited by 6 (Google Scholar) and Cited by 5 (Web of Science).
28. **Frid, V^{PI}**., Rabinovitch A^{PI}., Bahat D^{PI}. 2006. Crack velocity measurement by induced electromagnetic radiation. *Physics Letters A* 356, 160-163 Cited by 26 (Google Scholar) and Cited by 17 (Web of Science).
29. Rabinovitch A^{PI}., **Frid, V^{PI}**., Bahat D^{PI}. 2006. Wallner lines revisited. *J. Appl. Physics* 99, 076102-076105 (IF=2.9, CITESCORE 5.1, H-index 341, JCR – **Q2** (Physics and Astronomy)/CiteScore – **Q2** (Physics and Astronomy). Cited by 28 (Google Scholar) and Cited by 23 (Web of Science).
30. Bahat D^{PI}., Rabinovitch A^{PI}., **Frid, V^{PI}**., Bankwitz. 2006. Comparative fracture of joints that strike parallel to structures in sedimentary rocks-characterization and implications. *Isr. J. Earth Sci.* 55, 159-171.

31. Bahat D^{PI}., **Frid, V^{PI}**., Rabinovitch A^{PI}. 2006. Paleostress clockwise rotation in the Sinai-Israel sub-plate and the initiation of the Dead Sea Rift. *Isr. J. Earth Sci.* 55, 113-127 Cited by 6 (Google Scholar).
32. **Frid, V^{PI}**., Bahat D^{PI}., Rabinovitch A^{PI}. 2005. Analysis of en e'chelon/hackle fringes and longitudinal splits in twist failed glass samples by means of fractography and electromagnetic radiation. *J. Struct. Geol.* 27, 145-159 (IF=3.1, CITESCORE 6.2, H-index 140, JCR – **Q1** (Economic Geology)/CiteScore – **Q1** (Geology). Cited by 21 (Google Scholar) and Cited by 20 (Web of Science).
33. **Frid, V^{PI}**., Goldbaum J^S., Rabinovitch A^{PI}., Bahat D^{PI}. 2005. Depolarization in percussion drilling of Solenhofen limestone. *J. Appl. Phys.* 97, 149081-0149083 (IF=2.9, CITESCORE 5.1, H-index 341, JCR – **Q2** (Physics and Astronomy)/CiteScore – **Q2** (Physics and Astronomy). Cited by 2 (Google Scholar) and Cited by 1 (Web of Science).
34. **Frid, V^{PI}**., Vozoff K^C. 2005. Electromagnetic radiation induced by mining rock failure. *Intern. J. Coal Geol.* 64(1-2), 57-65 (IF=2.9, CITESCORE 11.3, H-index 160, JCR – **Q2** (Physics and Astronomy)/CiteScore – **Q1** (Geology). Cited by 193 (Google Scholar) and Cited by 127 (Web of Science).
35. Rabinovitch A^{PI}., Shay A^S., Liraz R^S., **Frid, V^{PI}**., Bahat D^{PI}. 2005. Electromagnetic radiation emitted during friction process. *Intern. J. Fract.* 131, L21-L27 (IF=2.7, CITESCORE 4.4, H-index 106, JCR – **Q2** (Computational mechanics)/CiteScore - **Q1** (Computational Mechanics). Cited by 22 (Google Scholar) and Cited by 15 (Web of Science).
36. **Frid, V^{PI}**., Rabinovitch A^{PI}., Bahat D^{PI}. 2003. Fracture induced electromagnetic radiation. *J. Phys. D.* 36, 1620-1628 (IF=2.7, CITESCORE 5.9, H-index 220, JCR – **Q1** (Acoustics and Ultrasonics)/CiteScore - **Q1** (Acoustics and Ultrasonics). Cited by 205 (Google Scholar) and Cited by 123 (Web of Science).
37. Goldbaum J^S., **Frid, V^{PI}**., Bahat D^{PI}., Rabinovitch A^{PI}. 2003. An Analysis of Complex EMR Signals Induced by Fracture. *Measurement Science and Technology* 14, 1839-1844 (IF=2.4, CITESCORE 3.9, H-index 149, JCR – **Q2** (Applied mathematics)/CiteScore - **Q1** (Applied mathematics). Cited by 28 (Google Scholar) and Cited by 20 (Web of Science).
38. Rabinovitch A^{PI}., **Frid, V^{PI}**., Goldbaum J^S., Bahat D^{PI}. 2003. Polarization-depolarization process in glass during percussion drilling. *Phil. Mag. A* 83 (25), 2929-2940 (H-index 88) Cited by 14 (Google Scholar) and Cited by 6 (Web of Science).
39. Rabinovitch A^{PI}., **Frid, V^{PI}**., Bahat D^{PI}., Goldbaum J^S. 2003. Decay mechanism of the fracture induced electromagnetic pulses. *J. Appl. Physics* 93(9), 5085-5090 IF=2.9, CITESCORE 5.1, H-index 341, JCR – **Q2** (Physics and Astronomy)/CiteScore – **Q2** (Physics and Astronomy). Cited by 19 (Google Scholar) and Cited by 14 (Web of Science).
40. Bahat D^{PI}., **Frid, V^{PI}**., Rabinovitch A^{PI}., Palchik V^C. 2002. Exploration via electromagnetic radiation and fractographic methods of fracture properties induced by compression in glass-ceramic. *Int. J. Fracture* 116, 179-194 (IF=2.7, CITESCORE 4.4, H-index 106, JCR – **Q2** (Computational mechanics)/CiteScore - **Q1** (Computational Mechanics). Cited by 43 (Google Scholar) and Cited by 33 (Web of Science).

41. Rabinovitch A^{PI}., **Frid, V^{PI}**., Bahat D^{PI}., Goldbaum J^S. (2002) A New Method to Obtain Crack Surface Areas from Electromagnetic Radiation Emitted in Fracture: A String of Pulses. In: Karihaloo B.L. (eds) Analytical and Computational Fracture Mechanics of Non-Homogeneous Materials. Solid Mechanics and Its Applications. 97: 343-348. Springer, Dordrecht. https://doi.org/10.1007/978-94-017-0081-8_37.
42. Rabinovitch A^{PI}., **Frid, V^{PI}**., Bahat D^{PI}. 2002. Gutenberg-Richter type relation for laboratory fracture induced electromagnetic radiation. Physical Review E 65, 011401-011404. (IF=2.7, CITESCORE 4.6, H-index 317, JCR – **Q1** (Condensed matter physics)/CiteScore - **Q1** (Statistics and Probability). Cited by **82** (Google Scholar) and Cited by **45** (Web of Science).
43. Rabinovitch A^{PI}., Bahat D^{PI}., **Frid, V^{PI}**. 2002. Similarity and dissimilarity of electromagnetic radiation from carbonate rocks under compression, drilling and blasting. Intern J. Rock Mech. And Mining Science 39(1) 125-129 (IF=7.2, CITESCORE 13, H-index 187, JCR – **Q1** (Geotechnical Engineering and Engineering Geology)/CiteScore - **Q1** (Geotechnical Engineering and Engineering Geology) Cited by **45** (Google Scholar) and Cited by **36** (Web of Science).
44. Bahat D^{PI}., Rabinovitch A^{PI}., **Frid, V^{PI}**. 2001. Fracture characterization of chalk in uniaxial and triaxial tests by rock mechanics, fractographic and electromagnetic methods. J. Structural Geology 23, 1531-1547 (IF=3.1, CITESCORE 6.2, H-index 140, JCR – **Q1** (Economic Geology)/CiteScore – **Q1** (Geology). Cited by **40** (Google Scholar) and Cited by **31** (Web of Science).
45. **Frid, V^{PI}**. 2001. Calculation of electromagnetic radiation criterion for rockburst hazard forecast in coal mines, Pure and Applied Geophysics 158, 931-944 (IF=2.1, CITESCORE 4.8, H-index 101, JCR – **Q2** (Geochemistry and Petrology)/CiteScore – **Q2** (Geophysics). Cited by **79** (Google Scholar) and Cited by **49** (Web of Science).
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47. **Frid, V^{PI}**., Bahat D^{PI}., Goldbaum J^S., Rabinovitch A^{PI}. 2000. Experimental and theoretical investigation of Electromagnetic radiation induced by rock fracture, Israel Journal of Earth Sciences 49, 9-19 Cited by **51** (Google Scholar).
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53. **Frid, V^{PI}**. 1998. Electromagnetic radiation method for rock and gas outburst forecast. *J. Appl. Geoph.* 38, 97 - 104 Cited by 143 (Google Scholar) and Cited by 90 (Web of Science).
54. **Frid, V^{PI}**. 1997. Rock-burst hazard forecast by electromagnetic radiation excited by rock fracture. *J. Rock Mech. Rock Engin.* 30 (4), 229-236 Cited by 124 (Google Scholar) and Cited by 76 (Web of Science).
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60. Proskurjakov V^C., Shabarov A^C., **Frid, V^{PI}**. 1990. Evaluation of stress state of rock-burst and rock- and gas-outburst dangerous seams. *Coal* 5, 58-59.
61. **Frid, V^{PI}**. 1990. Control of rock-burst and rock outburst dangerous coal seams by electromagnetic radiation. In *Geomechanical problems during economical mineral extraction*. VNIMI, Leningrad, Russia, V. Smirnov (ed), 51-54.

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63. Proskurjakov V^C., Shabarov A^C., **Frid, V^{PI}**. 1989. Electromagnetic radiation from edge parts of rock-burst dangerous seams. Labor safety in industry 4, 32-34.
64. Skakun A^C., Pushanski V^C., **Frid, V^{PI}**. 1987. Rock fracture control by electromagnetic radiation. In Geophysical methods for rock rupture forecast. VNIMI, Leningrad, Russia, V. Smirnov (ed.), 71-77.

6.2. Books/collective volumes

6.2.1. Books

1. Bahat D., Rabinovitch A., Frid V. 2005. Tensile fracture in rocks. Invited monograph by Springer, Heidelberg 569pp. Cited by 168 (Google Scholar).
2. Proskuryakov V., Shabarov A., Frid V. 1991. Short term estimation of dynamic phenomenon on coal seams by electromagnetic radiation. Kemerovo book publishing house. 192pp.

6.2.2. Book Chapter

- * 1. Frid A^S., **Frid, V^{PI}**. 2021. Features of a large-scale survey of highways with georadar. Advances in Transportation Geotechnics IV. V. 2. <https://doi.org/10.1007/978-3-030-77234-5-70>. Cited by 2 (Google Scholar).
- * 2. Frid A^S., **Frid, V^{PI}**., Boronin G. 2020. Dielectric permittivity of water-saturated asphalt - temperature effect. 18th International Conference on Ground Penetrating Radar, Golden, Colorado, 14–19, 2020, <https://doi.org/10.1190/gpr2020-092.1>. Cited by 1 (Google Scholar).
3. Rabinovitch A^{PI}., Bahat D^{PI}., **Frid, V^{PI}** , Goldbaum J^S. A New Method to Obtain Crack Surface Areas from Electromagnetic Radiation Emitted in Fracture: A String of Pulses. IUTAM Symposium on Analytical and Computational Fracture Mechanics of Non-Homogeneous Materials. 2002. https://doi.org/10.1007/978-94-017-0081-8_37.

4. Papers and abstracts – proceedings of conferences

- * 1. **Frid, V^{PI}**. Effect of rock stiffness change of acoustic emission. 2023. In: Proceedings of the ISRM 15th International Congress on Rock Mechanics and Rock Engineering & 72nd Geomechanics Colloquium – Challenges in Rock Mechanics and Rock Engineering, Schubert, W. & Kluckner, A. (eds), Salzburg, Austria, October 9-14, 2023. Austrian Society for Geomechanics: Salzburg. **Rank A, Impact score 0.8**.
- * 2. **Frid, V^{PI}**., Potirakis S.M^C., Shulov S^C. 2020. Effect of soil loading/unloading on its acoustic behavior. 1st International Electronic Conference on Applied Sciences. Section: Acoustics and Vibrations.
- * 3. **Frid, V^{PI}**., Liskevitch G^C. 2020. Application of geophysical methods as an integral part of geotechnical site characterization. 6TH International Conference on Geotechnical and Geophysical Site Characterization. Hungary, Budapest. 07.09.2020 - 11.09.2020 (accepted for conference).

4. Frid A^S., **Frid, V^{PI}**. 2018. Irregular changes in antenna height during high-speed scanning as a source of essential errors in measuring the thickness of asphalt. 17th International Conference on Ground Penetrating Radar. GPR 2018. Rapperswil, Switzerland, 772-775. Cited by 5 (Google Scholar).
5. **Frid, V^{PI}**., Mulev S^C. 2018. Rock stress assessment based on the fracture induced electromagnetic radiation. Eurock 2018. GEOMECHANICS AND GEODYNAMICS OF ROCK MASSES. Taylor & Francis Group, London, ISBN 978-1-138-61645-5, 505-512. Cited by 3 (Web of Science). **Rank A, Impact score 0.8**.
6. **Frid, V^{PI}**., Shabarov A^C. 2018. Modern principles of nondestructive stress monitoring in mine workings - Overview. Eurock 2018. GEOMECHANICS AND GEODYNAMICS OF ROCK MASSES. Taylor & Francis Group, London, ISBN 978-1-138-61645-5, 513-518. Cited by 3 (Google Scholar) and Cited by 6 (Web of Science). **Rank A, Impact score 0.8**.
7. Rabinovitch A^{PI}., **Frid, V^{PI}**., Bahat D^{PI}. 2017. Earthquake forecast by detection and analysis of electromagnetic radiation The 12th Euro-conference on Rock Physics and Geo-Mechanics, "Bridging between Rock Physics and Structural Geology", Ma'ale HaHamisha, Israel.
8. Kolodner K^{PI}., **Frid, V^{PI}**. 2017. Oil sands and the different ways to explore them. Israel Geological Community Meeting. Mitze Ramon, Israel.
9. **Frid, V^{PI}**., Averbakh A^C., Liskevich G^C. (2013) Integrated Investigation of the Instability-prone Landfill Site. Near Surface Geoscience 2013 - 19th EAGE European Meeting of Environmental and Engineering Geophysics. <https://doi.10.3997/2214-4609.20131418>. (IF=1.02, CITESCORE 2.8, H-index 38, JCR – Q2 (Environmental Engineering)/CiteScore – Q2 (Geophysics). Cited by 1 (Google Scholar).
10. Itkis S.E^C., **Frid, V^{PI}**., Sokolova T.B^C. (2012) Integrated Geophysical Study in Tel 'En Gev, Israel. Near Surface Geoscience 2012 – 18th European Meeting of Environmental and Engineering Geophysics. <https://doi.org/10.3997/2214-4609.20143451>. **Impact score 0.7**.

5. Patents

1. **Frid, V^{PI}**., Antonov A. 1986. Device for rock tension. Authorship Certificate 1278666, Invention Bulletin 7.
2. Frid V. **Frid, V^{PI}**., Antonov A. 1987. Equivalent material for rock modeling. Authorship Certificate 1308760, Invention Bulletin 17.
3. **Frid, V^{PI}**., Bljakhman A., Proskurjakov V. 1988. Method of rock stress determination. Authorship Certificate 1368436, Invention Bulletin 3.
4. **Frid, V^{PI}**., Proskurjakov V., Skakun A. 1988. Control method of protective zone of coal seam. Authorship Certificate 1388931, Invention Bulletin 8.
5. **Frid, V^{PI}**., Bljakhman A., Muljov 1989. Method of rock stress determination. Authorship Certificate 1461925, Invention Bulletin 8.

6. **Frid, V^{PI}**, Proskurjakov V., Shabarov A. 1989. Method of high stress zone prospecting. Authorship Certificate 1511434 Invention Bulletin 36.
7. **Frid, V^{PI}**, Proskurjakov V., Shabarov A. 1989. Control method of protective zone of coal seam. Authorship Certificate 1576521, Invention Bulletin 39.
8. **Frid, V^{PI}**, Proskurjakov V., Shabarov A. 1989. Method of struggle against dynamic events in rock seams. Authorship Certificate 1591025, Invention Bulletin 41.
9. **Frid, V^{PI}**, Proskurjakov V., Shabarov A. 1989. Method of coal seam moisture control. Authorship Certificate 1617141, Invention Bulletin 48.
10. **Frid, V^{PI}**, Proskurjakov V., Skakun A. 1990. Control of stress state of coal seam. Authorship Certificate 1624138, Invention Bulletin 4.
11. **Frid, V^{PI}**, Berson V. Proskurjakov V. 1991. Method of struggle with gasodynamic events. Positive resolution of VNIIGPE 4907600.
12. **Frid, V^{PI}**, Proskurjakov V., Skakun A. 1992. Evaluation of rock-burst and rock-outburst manifestation in coal seams. Authorship Certificate 1717846 Invention Bulletin 9.

6. Academic roles

Since 2016 Leader of the "Tunneling" specialization in Civil Engineering Dept. Ashdod Campus.

Since 2016 Member of the Appeals and Pedagogical committees in Civil Engineering Dept. Ashdod Campus.

7. Preparation of academic programs

1. V. Frid B.Sc. program for Civil Engineering with specialization in Tunneling. SCE - Sami Shamoon College of Engineering, Israel. 2016-2017.
2. V. Frid Development of the criteria and program for the registration of B.Sc. students from Civil Engineering with a specialization in Tunneling in the register of Tunneling Engineers. SCE - Sami Shamoon College of Engineering, Israel. 2019.

8. Courses taught

2022-2023 Monitoring Methods in the Building Industry (Sami Shamoon College of Engineering)

2022-2024 The methods of underground mining (Sami Shamoon College of Engineering)

2022-2023 Testing methods (including QA/QC) on building sites (+ exercises), (Sami Shamoon College of Engineering)

2018-2024 Engineering Geology for Tunneling (+ exercises), (Sami Shamoon College of Engineering)

2017-2024 Introduction to Engineering Geology (+ exercises) (Sami Shamoon College of Engineering)

- 2017-2024 Rock mechanics for Tunneling (+ exercises), (Sami Shamoon College of Engineering)
- 2016-2024 Soil mechanics -1 (+ exercises), (Sami Shamoon College of Engineering)
- 2016-2024 Introduction to earthquakes (Sami Shamoon College of Engineering)
- 2016-2020 Application of engineering geophysical methods for design, construction and maintenance of tunnels properties (Ben Gurion University of the Negev)
- 1993-2005 Introduction to rock physical properties (Ben Gurion University of the Negev)
- 1993-2005 Applied geophysical methods for the rock stress estimation (Ben Gurion University of the Negev)
- 1993-2005 Rock testing by geophysical methods (Ben Gurion University of the Negev)
- 1993-2005 Fracture mechanics (Ben Gurion University of the Negev)
- 2002-2002 Introduction to soil mechanics (+ laboratory and exercises) (Negev Academic College of Engineering)
- 2002-2002 Introduction to engineering geology (+ exercises), (Negev Academic College of Engineering)

9. Editorial roles

9.1 Manuscripts' reviewer

1. *Advanced Manufacturing Technology (2018)*
2. *Advances in Civil Engineering (2018)*
3. *Annals of Geophysics (2023)*
4. *Applied sciences (2020,2021,2023)*
5. *Bulletin of Engineering Geology and the Environment (2021)*
6. *Construction and Building Materials (2020)*
7. *Engineering Fracture Mechanics (2018,2021,2022)*
8. *Engineering Geology (2020,2022,2023)*
9. *Entropy (2020,2022,2023)*
10. *Frontiers in Earth Science (2022)*
11. *Geodynamics (2019)*
12. *Geomechanics and Engineering, An International Journal (2021,2022)*
13. *Geoscience and Remote Sensing magazine (2018)*
14. *Geosciences (2023)*
15. *Geotechnical and Geological Engineering (2018)*
16. *International Journal of modern science and technology (2018)*
17. *International Journal of Rock Mechanics and Mining Sciences (2022)*
18. *Journal of Geophysical Research: Solid Earth (2019)*
19. *Journal of Geophysics and Engineering (2018)*
20. *Journal of Rock Mechanics and Geotechnical Engineering (2022)*
21. *Journal of Structural Geology (2020)*
22. *Measurements (2018,2020,2022)*
23. *Materials (2023)*
24. *Natural Hazards (2019)*

25. *Philosophical Transactions A* (2022)
26. *Rock Mechanics and Rock Engineering* (2020,2022)
27. *Scientific reports* (2020,2021,2022,2023)
28. *Shock and Vibration* (2018)
29. *Sustainability* (2022)
30. *Tectonophysics* (2018)

9.2 Editorial Board Member

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| 2021 - up to date | Entropy, MDPI - Editorial Board Member https://www.mdpi.com/journal/entropy/editors |
| 2021 - up-to-date | Foundations, MDPI - Editor-in-Chief - Earth Science section https://www.mdpi.com/journal/foundations/editors |
| 2021 - up-to-date | Frontiers in Earth Science - Review Editor Board Member |

10. Positions in conferences

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|---|------|---|
| * | 2023 | The Israel National Group representative at the ISRM council meeting. |
| | 2018 | Chair of the section of Applied geophysics in Eurock2018, ISRM meeting. |

11. Membership in professional/scientific societies

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|-----------|---|
| 2018-2024 | Member of the International Society for Rock Mechanics and Rock Engineering through the National Group of Israel International Society for Rock Mechanics and Rock Engineering. |
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12. A member in Organizing Committees

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| * | 2019 | Multi-scale dynamic rock failure monitoring - lab, tunneling, earthquake (DRFM) International Workshop in Ashdod, Israel, November 4 2019. |
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