

Ehsan Vahidi, Ph.D.

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PROFESSIONAL PREPARATION

Assistant Professor, John N. Butler Endowed Professor in Extractive Metallurgy, University of Nevada, Reno, Mining and Metallurgical Engineering, 07/2020-Present.

Postdoctoral Associate, Massachusetts Institute of Technology, Department of Civil & Environmental Engineering, 08/2018-present.

Kaufman Teaching & Learning Certificate, Massachusetts Institute of Technology, Teaching and Learning Lab, 2019.

Mini-MBA, Applied Management Principles, Purdue University, Krannert School of Management, 2018.

ACADEMIC PREPARATION

Ph.D., Purdue University, Environmental and Ecological Engineering, 2018. (LCA of Critical Materials for Energy Applications, Sponsored by US DoE, Advisor: Prof. Fu Zhao)

M.Eng., University of South Florida, Civil & Environmental Engineering, 2014.

M.Sc., University of Tehran, Metallurgical Engineering, 2008.

B.Sc., Sharif University of Technology, Metallurgical Engineering, 2005.

HONORS & AWARDS

- **Excellence in Review Award for 2018**; *Resources, Conservation, and Recycling Journal*, February 2019.
- **College of Engineering Outstanding Graduate Student Research Award**; *Purdue University*, May 2018.
- **Ecological Sciences and Engineering Outstanding Graduate Student in Research Award**; *Purdue University*, April 2018.
- **Hugh W. and Edna M. Donnan Dissertation Fellowship**; *Purdue University*, July 2017-June 2018.
- **A.H. Ismail Interdisciplinary Program Doctoral Research Award**; *Purdue University*, January 2018.
- **College of Engineering Travel Award**; *Purdue University*, October 2017.
- **Andrews Environmental Research Award**; *Purdue University*, February 2017.
- **TMS (The Minerals, Metals & Materials Society) Travel Award**; *TMS 2016*, February 2016.
- **Blosser Environmental Research Award**; *Purdue University*, January 2016.
- **Lynn Fellowship**; *Purdue University*, July 2014-June 2015.
- **Presidential Fellowship**; *University of South Florida*, August 2011-May 2014.

RESEARCH EXPERIENCE

University of Nevada, Reno, Mining & Metallurgical Engineering, Assistant Professor, 2020-Present

- Leading a project on the recovery and separation of critical and strategic materials from spent lithium-ion batteries using a sustainable and economic process.
- Managing a team to create an open-source spreadsheet-based Life Cycle Assessment (LCA) software tool to quantitatively assess environmental impacts associated with different recycling stages of spent batteries.
- Investigating the separation of REEs from coal by-products and their associated environmental impacts.
- Investigating extraction and separation of Rare Earth Elements (REEs) from Mountain Pass mine in California as the only primary resource for REEs in the US.
- Conducting sustainability assessment of gold mining activities in Nevada.

Massachusetts Institute of Technology, Department of Civil & Environmental Engineering, Concrete Sustainability Hub (CS-Hub) & Materials Systems Laboratory, Postdoctoral Associate, 8/2018-07/2020

- Identified the challenges and barriers to constructing buildings more sustainable and propose solutions to address the challenges.
- Analyzed different building types with various design scenarios in a number of geographical locations to realize how energy load changes across different locations and climate zones in the US.
- Explored whether updates to building codes in the US can yield demonstrable benefits.

Bionova Ltd. (One Click LCA Software Developer), Part-Time Research Associate, 2/2019-12/2019

- Led a research project to conduct LCA in order to calculate different types of buildings' carbon footprint over their lifetime.
- Supported advanced LCA technology commercialization in North America and representing Bionova as the global leader for construction works life-cycle assessment and carbon measurement and optimization software.

Purdue University, Environmental & Ecological Engineering, Lynn Fellow & Donnan Fellow, 2014-2018

- Led project team to conduct a Life Cycle Assessment (LCA) of critical materials such as Rare Earth Elements (REEs) sponsored by the Department of Energy (DOE) through the Critical Materials Institute. The results were published in five peer-reviewed journal papers. Two more manuscripts are under review.
- Managed project team to create an open source spreadsheet based LCA software tool in order to quantitatively assess environmental impacts of different production stages of REEs as well as manufacturing rare earth magnets and their recycling processes (cradle to cradle).
- Collaborated with a group of researchers from Idaho National Lab and Purdue University to conduct a techno-economic assessment of rare earths recovery from waste magnets via biological treatment.

- Contributed to a successful proposal including a proposal on a sustainable end of life management of lithium-ion batteries which has recently received \$412,500 in funding from the DOE's Critical Materials Institute.
- Investigated the wastewater system to quantify the environmental impacts of different pipe materials in sewer systems and to support the selection of pipe material for better life cycle environmental performance. Findings have been published in two peer-reviewed journal papers.
- Contributed in a project called COMBO (<https://combochairs.wixsite.com/combo>) supported by J.W. Fulbright Commission to develop an efficient and, as much as possible, a versatile system for the life cycle assessment of bio-based materials in order to be applied by furniture designers.

University of South Florida, Environmental Engineering, Presidential Fellow, 2011-2014

- Led a project to optimize recovery of lithium and cobalt from spent lithium-ion batteries.
- Contributed to a successful proposal funded by NSF on a sustainable recovery of lithium and cobalt from spent rechargeable batteries.

University of Tehran, Materials Engineering, Research Assistant, 2007-2011

- Led project team to efficiently recover valuable materials from industrial waste streams. The outcomes were published in three peer-reviewed journal papers. Outcomes have been published in 12 peer-reviewed journal papers.

TEACHING EXPERIENCE

- **University of Nevada, Reno**, Fall & Spring 2020, Designed and developed two curricula on "Introduction to Metallurgical Engineering I & II" for freshmen in the Department of Mining and Metallurgical Engineering. These courses will enhance students' ability to speak professionally about basic concepts of minerals, metals, separations science and engineering and their associated environmental issues. Moreover, analytical skills in using spreadsheets to calculate and plot process flowsheets of chemical operations will be developed. Furthermore, proficiency in the use of simulation packages to simulate chemical operations will be advanced.
- **Massachusetts Institute of Technology**, Spring 2019, Received Kaufman Teaching & Learning Certificate. During the program at MIT, I attended various sessions which include: i) designing a course and constructing a syllabus, ii) planning and facilitating a class session, iii) introduction to research on how people learn, iv) interactive teaching and active learning, v) constructing effective problem sets and exam questions, vi) teaching inclusively, and vii) developing a teaching philosophy statement. The program also included a short teaching session and I also presented a lesson to a peer group and an instructor and received feedback from them.
- **Purdue University**, Spring 2017, Designed and developed a curriculum in collaboration with Purdue School of Engineering Education on "*Green Design and Manufacturing for Sustainable Engineering*". The big idea of this course is that by understanding life cycle assessment and green design fundamentals, students can be uniquely prepared to make decisions on more sustainable product systems and evaluate options in a global scale which minimizes the impact of different activities on environment, resources, and people. Thus, this course will enhance students' ability to speak professionally about sustainability, and environmental issues.
- **Purdue University**, Fall 2017, As a guest lecturer in EEE 43000 (*Industrial Ecology and Life Cycle Analysis*), I delivered a guest lecture in LCA, a lecture was developed and delivered regarding the

outputs and processes associated with industrial systems with special emphasis placed on interactions of these systems with environmental and ecological systems. A full product life cycle perspective was highlighted, including energy and material flows, processes used to produce materials and realize products, and the management of end-of-life products.

- **University of Tehran**, 2006-2008, Coordinated *Biotechnology and Hydrometallurgy Lab* as well as *Mineral Processing Lab* and took the initiative to improve the course syllabus by designing new experiments and developing the course material in both labs.
- **University of Tehran**, Spring 2007, Teaching Assistant for *Environment and Recycling of Materials* class. Prepared homework and exam problems/solutions, gave review lectures, and facilitated student laboratory experiments.

GRADUATE & UNDERGRADUATE RESEARCH MENTORING

- **University of Nevada, Reno**, 2020-now, Supervising two Ph.D. and two master's students in their projects. Leading the research on the recovery and separation of critical and strategic materials from various resources. Conducting LCA and TEA to identify the environmental and economic hotspots in different processes.
- **Purdue University**, 2014-2017, Supervised two master's students in their projects. Led the research on the Life Cycle Assessment of Rare Earth Elements and developed an open access tool for a cradle to grave LCA of REEs. Co-authored two peer-reviewed journal papers in *Resources, Conservation and Recycling* and *ACS Sustainable Chemistry and Engineering*.
- **University of South Florida**, Summer 2013, Mentored an undergraduate student as well as a high school teacher in an interdisciplinary environmental research on toxic metal ions in drinking water. The program was supported by US NSF-REU (Research Experience for Undergraduate students) & US NSF-RET (Research Experience for Teachers).
- **University of Tehran**, 2008-2011, Managed and supervised eleven M.Sc. projects on materials recovery from different wastes. The findings were published in 9 papers in peer-reviewed journals.

GRANTS

November 2017 \$412,500	<i>U.S. Department of Energy, Critical Materials Institute (Phase II)</i> ; Purdue University, (In collaboration with Professor Fu Zhao), " <u>Sustainable End of Life Management of Lithium-ion Batteries to Maximize Resource Efficiency</u> ".
September 2014 \$50,000	<i>National Science Foundation (NSF) EAGER Research Grant</i> ; University of South Florida, (In collaboration with Professor Jeffrey Cunningham & Professor Valerie Harwood), " <u>Sustainable recovery of lithium and cobalt from spent rechargeable batteries</u> ".
December 2013 \$5,200	<i>Creative Scholarship Grant (Internal Awards Program)</i> ; University of South Florida, (In collaboration with Professor Jeffrey Cunningham), " <u>Recovery of valuable metals from solid waste: Fungal bioleaching of lithium and cobalt from spent rechargeable batteries</u> ".

PUBLICATIONS

Peer-Reviewed Journal Papers

26. **Ehsan Vahidi**, Randolph E Kirchain, Jeremy R Gregory, “Regional variation of greenhouse gas mitigation strategies for the United States building sector”, Under review at *Applied Energy*, February 2021.
25. Seyed Kamal Mousavinezhad, Nazanin Farmanbordar Ghadikolaie, Elaheh Kowsari, Seeram Ramakrishna, and **Ehsan Vahidi**, “Environmental impacts of mining and its significant mitigations by considering life cycle assessment (LCA)”, Under review at *Environmental Science and Pollution Research*, February 2021.
24. **Ehsan Vahidi**, Shewta Singh, Fu Zhao, “An investigation on the complexity of life cycle inventories for the rare earth production using network analysis”, Under review at *Resources, Conservation & Recycling*, February 2021.
23. Rasoul Khayyam Nekouei, Ignacio Tudela, Sajjad S. Mofarah, **Ehsan Vahidi**, Ke Wang, Samane Maroufi, Farshid Pahlevani, Veena Sahajwalla, “Dual Functionality of Mixed Cu-based Two-Dimensional (2D) Heterostructures Derived from Electronic Wastes”, Under review at *Green Chemistry-Royal Society of Chemistry*, October 2020.
22. Jeremy R Gregory, Hessam Azarijafari, **Ehsan Vahidi**, Fengdi Guo, Franz-Josef Ulm, Randolph E Kirchain, “The role of concrete in life cycle greenhouse gas emissions of US buildings and pavements”, Under review at *Proceedings of the National Academy of Sciences (PNAS)*, October 2020.
21. Gwendolyn Bailey, James Joyce, Dieuwertje Schrijvers, Rita Schulze, Anne Marie Sylvestre, Benjamin Sprecher, **Ehsan Vahidi**, Wim Dewulf, and Karel Van Acker, (2020). “Review and new life cycle assessment for rare earth production from bastnäsite, ion adsorption clays and lateritic monazite”, *Resources, Conservation & Recycling*, 155, 104675. ([DOI: 10.1016/j.resconrec.2019.104675](https://doi.org/10.1016/j.resconrec.2019.104675))
20. Zhen Li, Luis A Diaz, Zhiyao Yang, Hongyue Jin, Tedd Lister, **Ehsan Vahidi**, and Fu Zhao, (2019). “Comparative Life Cycle Analysis for Value Recovery of Precious Metals and Rare Earth Elements from Electronic Waste”, *Resources, Conservation & Recycling*, 149, 20-30. ([DOI: 10.1016/j.resconrec.2019.05.025](https://doi.org/10.1016/j.resconrec.2019.05.025))
19. Praneet Arshi, **Ehsan Vahidi**, Fu Zhao, (2018). “Behind the scenes of clean energy—the environmental footprint of rare earth products”, *ACS Sustainable Chemistry and Engineering*, 6 (3), 3311–3320. ([DOI: 10.1021/acssuschemeng.7b03484](https://doi.org/10.1021/acssuschemeng.7b03484))
18. **Ehsan Vahidi**, and Fu Zhao, (2018). “Assessing the environmental footprint of the production of rare earth metals and alloys via molten salt electrolysis”, *Resources, Conservation & Recycling*, 139, 178-187. ([DOI: 10.1016/j.resconrec.2018.08.010](https://doi.org/10.1016/j.resconrec.2018.08.010))
17. Vicki Thompson, Mayank Gupta, Hongyue Jin, **Ehsan Vahidi**, Michael Jindra, Van Nguyen, Yoshiko Fujita, John Sutherland, Yongqin Jiao, and David Reed, (2018). “Optimization and Technoeconomic and Life Cycle Analysis of Rare Earth Element Bioleaching from Waste Materials”, *ACS Sustainable Chemistry and Engineering*, 6 (2), 1602–1609. ([DOI: 10.1021/acssuschemeng.7b02771](https://doi.org/10.1021/acssuschemeng.7b02771))

16. **Ehsan Vahidi** and Fu Zhao, (2017). "Environmental life cycle assessment on the separation of rare earth oxides through solvent extraction", *Journal of Environmental Management*, 203, 255-263. (DOI: [10.1016/j.jenvman.2017.07.076](https://doi.org/10.1016/j.jenvman.2017.07.076))
15. Rabeeh Golmohammadzadeh, Fereshteh Rashchi, and **Ehsan Vahidi**, (2017). "Recovery of lithium and cobalt from spent lithium-ion batteries using different organic acids: Process optimization and kinetic aspects", *Waste Management*, 64, 244–254. (DOI: [10.1016/j.wasman.2017.03.037](https://doi.org/10.1016/j.wasman.2017.03.037))
14. Somayyeh Dashti and Fereshteh Rashchi, Masoud Emami, and **Ehsan Vahidi**, (2017). "The influence of anode composition on energy consumption and current efficiency in zinc electrowinning", *Journal of the Electrochemical Society*, 164 (7), 166-172. (DOI: [10.1149/2.1031707jes](https://doi.org/10.1149/2.1031707jes))
13. **Ehsan Vahidi**, Julio Navarro, Fu Zhao, (2016). "An initial life cycle assessment of rare earth oxides production from ion-adsorption clays", *Resources, Conservation & Recycling*, 113, 1-11. (DOI: [10.1016/j.resconrec.2016.05.006](https://doi.org/10.1016/j.resconrec.2016.05.006))
12. **Ehsan Vahidi**, Enze Jin, Maithilee Das, Mansukh Singh and Fu Zhao, (2016). "Environmental life cycle analysis of pipe materials for sewer systems", *Sustainable Cities and Society*, 27, 167–174. (DOI: [10.1016/j.scs.2016.06.028](https://doi.org/10.1016/j.scs.2016.06.028))
11. Mohammad Mirazimi, and Fereshteh Rashchi, **Ehsan Vahidi**, Navid Mostoufi, (2016). "Optimization and dissolution kinetics of vanadium recovery from LD converter slag in alkaline media", *Russian Journal of Non-Ferrous Metals*, 57 (5), 395–404. (DOI: [10.3103/S1067821216050126](https://doi.org/10.3103/S1067821216050126))
10. **Ehsan Vahidi**, Enze Jin, Maithilee Das, Mansukh Singh and Fu Zhao, (2015). "Comparative life cycle assessment of wastewater pipeline materials", *Procedia Engineering*, 1190-1201. (DOI: [10.1016/j.proeng.2015.08.461](https://doi.org/10.1016/j.proeng.2015.08.461))
9. Mehdi Noori, Fereshteh Rashchi, Ataollah Babakhani, and **Ehsan Vahidi**, (2014). "Selective recovery and separation of nickel and vanadium in sulfate media using mixtures of D2EHPA and Cyanex 272", *Separation and Purification Technology*, 136, 265–273. (DOI: [10.1016/j.seppur.2014.08.038](https://doi.org/10.1016/j.seppur.2014.08.038))
8. Ataollah Babakhani, Fereshteh Rashchi, Alireza Zakeri and **Ehsan Vahidi**, (2014). "Selective separation of Ni and Cd from sulphate solutions of spent Ni-Cd batteries using mixtures of D2EHPA and Cyanex 302", *Journal of Power Sources*, 247, 127-133. (DOI: [10.1016/j.jpowsour.2013.08.063](https://doi.org/10.1016/j.jpowsour.2013.08.063))
7. Reza Alizadeh, Fereshteh Rashchi and **Ehsan Vahidi**, (2011). "Recovery of zinc from zinc leach residues with minimum iron dissolution using oxidative leaching", *Waste Management and Research*, 29 (2), 165–171. (DOI: [10.1177/0734242X10372661](https://doi.org/10.1177/0734242X10372661))
6. Behzad Ghafarizadeh, Fereshteh Rashchi and **Ehsan Vahidi**, (2011). "Recovery of manganese from electric arc furnace dust", *Minerals Engineering*, 24, 174-176. (DOI: [10.1016/j.mineng.2010.11.003](https://doi.org/10.1016/j.mineng.2010.11.003))
5. **Ehsan Vahidi**, Fereshteh Rashchi and Kamyar Pashayi, (2010). "Effect of additives on the kinetics study of zinc ion in the system Zn/H₂SO₄/D2EHPA/Kerosene", *Canadian Metallurgical Quarterly*, 49 (3), 235-240. (DOI: [10.1179/cmqr.2010.49.3.235](https://doi.org/10.1179/cmqr.2010.49.3.235))

4. Mohsen Aarabi-Karasgani, Fereshteh Rashchi, Navid Mostoufi, and **Ehsan Vahidi**, (2010). “Kinetic study on the leaching of vanadium from LD converter slag using sulfuric acid”, *Hydrometallurgy*, 102, 14-21. (DOI: [10.1016/j.hydromet.2010.01.006](https://doi.org/10.1016/j.hydromet.2010.01.006))
3. Tahereh Hosseini, Fereshteh Rashchi, **Ehsan Vahidi**, and Navid Mostoufi, (2010). “Investigating the synergistic effect of D2EHPA and Cyanex 302 on zinc and manganese separation”, *Separation Science and Technology*, 45, 1158-1164. (DOI: [10.1080/01496391003727908](https://doi.org/10.1080/01496391003727908))
2. **Ehsan Vahidi**, Fereshteh Rashchi and Davood Moradkhani, (2009). “Recovery of zinc from an industrial zinc leach residue by solvent extraction using D2EHPA”, *Minerals Engineering*, 22, 204-206. (DOI: [10.1016/j.mineng.2008.05.002](https://doi.org/10.1016/j.mineng.2008.05.002))
1. **Ehsan Vahidi**, Maryam Akhlaghi and Fereshteh Rashchi, (2009). “Stripping of D2EHPA from Fe (III) after Solvent Extraction of Zn”, *The Journal of Iranian Metallurgical Engineering Society (in Persian)*, 12 (34), 4-13.

Manuscripts in Preparation

- Jacob Owen, Hongyue Jin, and **Ehsan Vahidi**, “Environmental life cycle analysis of permanent rare earth magnet manufacturing process”, In preparation for *Clean Technologies and Recycling*.
- Seyed Kamal Mousavinezhad, Saeede Kadivar, **Ehsan Vahidi**, “Comparative life cycle assessment for critical materials recovery from spent lithium-ion batteries”, In preparation for *Resources, Conservation & Recycling*.
- Duncan Brown, Hamid Akbari, **Ehsan Vahidi**, “Assessing the environmental footprint of gold mining activities at Round Mountain mine in Nevada”, In preparation for *Journal of Environmental Management*.
- Zuzana Toncikova, **Ehsan Vahidi**, and Eva Haviarova, “Life Cycle Assessment of wood-based furniture”, In preparation for *Materials & Design*.

Published Conference Proceedings

11. Gwendolyn Bailey, Dieuwertje Schrijvers, Rita Schulze, Anne Marie Sylvestre, James Joyce, Benjamin Sprecher, **Ehsan Vahidi**, Wim Dewulf, Karel Van Acker, “A State of the Art Life Cycle Assessment of Rare Earth Elements”, *TMS (The Minerals, Metals, and Materials Society) 2019, 148th Annual Meeting and Conference*, San Antonio, TX, USA, March 2019.
10. **Ehsan Vahidi** and Fu Zhao, “Life cycle analysis for solvent extraction of rare earth elements from aqueous solutions”, *TMS (The Minerals, Metals, and Materials Society) 2016, 145th Annual Meeting and Conference*, Nashville, TN, USA, February 2016.
9. **Ehsan Vahidi**, Mehdi Noori, Fereshteh Rashchi, and Ataollah Babakhani, “Synergistic extraction and separation of Nickel and Vanadium from sulfate leach liquor of power plant fly ash by the addition of Cyanex 272 to D2EHPA”, *AIChE (American Institute of Chemical Engineers) 2013 Annual Meeting*, San Francisco, CA, USA, November 2013.

8. **Ehsan Vahidi**, Ataollah Babakhani, Fereshteh Rashchi, and Alireza Zakeri, “Modeling of synergistic effect of Cyanex 302 and D2EHPA on separation of nickel and cadmium from sulfate leach liquors of spent Ni–Cd batteries”, *TMS (The Minerals, Metals, and Materials Society) 2013, 142nd Annual Meeting and Conference*, San Antonio, TX, USA, March 2013.
7. **Ehsan Vahidi**, Ali Shahnazi, and Fereshteh Rashchi, “A kinetics study on the hydrometallurgical recovery of vanadium from LD converter slag in alkaline media”, *TMS (The Minerals, Metals, and Materials Society) 2012, 141st Annual Meeting and Conference*, Orlando, FL, USA, March 2012.
6. **Ehsan Vahidi**, Ataollah Babakhani, and Fereshteh Rashchi, “Effect of different parameters on synergistic separation of nickel and cadmium from sulfate solution using D2EHPA and Cyanex 302”, *TMS (The Minerals, Metals, and Materials Society) 2012, 141st Annual Meeting and Conference*, Orlando, FL, USA, March 2012.
5. **Ehsan Vahidi**, Somayyeh Dashti, and Fereshteh Rashchi, “A study on the effect of different additives in electrolyte in zinc electrowinning process using Taguchi statistical experimental design methodology”, *TMS (The Minerals, Metals, and Materials Society) 2012, 141st Annual Meeting and Conference*, Orlando, FL, USA, March 2012.
4. **Ehsan Vahidi**, Mohsen Aarabi, and Fereshteh Rashchi, “Kinetics of vanadium leaching from LD converter slag in sulphuric acid solution”, *International Mineral Processing Congress (IMPC) 2010*, Brisbane, Australia, August 2010.
3. **Ehsan Vahidi**, Maryam Akhlaghi, and Fereshteh Rashchi, “Stripping of Fe (III) from D2EHPA extracted in solvent extraction process”, *International Mineral Processing Congress (IMPC) 2010*, Brisbane, Australia, August 2010.
2. **Ehsan Vahidi**, Mohammad Karim Nazemi, Fereshteh Rashchi, and Navid Mostoufi, “Kinetic study of nickel leaching from spent catalyst with sulfuric acid”, *48th Conference of Metallurgists (COM) 2009, Nickel-Cobalt 2009*, Sudbury, Ontario, Canada, August 2009.
1. **Ehsan Vahidi**, Fereshteh Rashchi, and Davood Moradkhani, “Liquid-liquid extraction of zinc from a leach residue using D2EHPA”, *International Mineral Processing Congress (IMPC) 2008*, Beijing, China, September 2008.

Conference Presentations

28. Gwendolyn Bailey, James Joyce, Dieuwertje Schrijvers, Rita Schulze, Anne Marie Sylvestre, Benjamin Sprecher, **Ehsan Vahidi**, Wim Dewulf, Karel Van Acker, “A State-of-the Art Life Cycle Assessment of Rare Earth Elements for production routes involving Bastnaesite, Monazite, and Ionic Clays”, *EUROMAT 2019 (European Congress & Exhibition on Advanced Materials & Processes)*, Stockholm, Sweden, September 2019.
27. **Ehsan Vahidi**, Jeremy Gregory, Randolph Kirchain, “Assessing the impacts of energy code evolution on energy performance and embodied environmental impacts of multi-family residential buildings in the US”, *The International Symposium on Sustainable Systems and Technology (ISSST) 2019*, Portland, OR, USA, June 2019.

26. **Ehsan Vahidi**, Shewta Singh, Fu Zhao, “An investigation on the complexity of life cycle inventories for the rare earth production using network analysis”, The International Symposium on Sustainable Systems and Technology (ISSST) 2018, Advances in the Circular Economy, Buffalo, NY, USA, June 2018.
25. **Ehsan Vahidi**, Praneet Arshi, Fu Zhao, “An easily accessible free software tool for life cycle assessment of rare earth elements”, 6th International Forum on Sustainable Manufacturing, Lexington, KY, USA, December 2017.
22. **Ehsan Vahidi**, Fu Zhao, “Life Cycle Analysis of Rare Earth Metals Production via Electro-Refining and Manufacturing of Rare Earth Magnets”, 2017 MRS Fall Meeting, Boston, MA, USA, November 2017.
22. **Ehsan Vahidi**, Shewta Singh, Fu Zhao, “Network Analysis of Rare Earth Production for Environmental Assessment”, ACLCA XVII, Portsmouth, NH, USA, October 2017.
22. **Ehsan Vahidi**, Fu Zhao, “An open source software tool for life cycle assessment of rare earth elements”, Association of Environmental Engineering and Science Professors (AEESP) 2017, Ann Arbor, MI, USA, June 2017.
21. **Ehsan Vahidi**, Fu Zhao, “Life cycle assessment for the solvent extraction process of rare earth oxides”, 23rd Annual Environmental Engineering & Science Symposium at UIUC, Champaign, IL, USA, April 2017.
20. **Ehsan Vahidi**, Praneet Arshi, Fu Zhao, “Life Cycle Analysis of the Production of Rare Earth Metals and Alloys via Electrowinning”, AIChE Midwest Regional Conference, Chicago, IL, USA, February 2017.
19. **Ehsan Vahidi**, Fu Zhao, “Development of an easily-accessed dataset for life cycle assessment of rare earth elements”, Critical Materials Institute (CMI) Winter Meeting at Colorado School of Mines, Golden, CO, USA, February 2017.
18. **Ehsan Vahidi**, Praneet Arshi, Fu Zhao, “An easily-accessed dataset for life cycle assessment of rare earth elements”, American Center for Life Cycle Assessment (ACLCA), Charleston, SC, USA, September 2016.
17. **Ehsan Vahidi**, Rabeeh Golmohammadzadeh, Fereshteh Rashchi, “Recovery of lithium and cobalt from spent Li-ion batteries using organic acids as leaching agents”, 22nd international congress of chemical and process engineering CHISA, Prague, Czech Republic, 27-31 August 2016.
16. **Ehsan Vahidi**, Fu Zhao, “Environmental Performance Assessment of Solvent Extraction Based Separation of Rare Earth Elements”, Critical Materials Institute (CMI) Winter Meeting at Colorado School of Mines, Golden, CO, USA, February 2016.
15. **Ehsan Vahidi**, Enze Jin, Maithilee Das, Mansukh Singh and Fu Zhao, “Comparative Life Cycle Assessment of Wastewater Pipeline Materials”, International Conference on Sustainable Design, Engineering and Construction 2015, Chicago, IL, USA, May 2015.
14. **Ehsan Vahidi**, Mehdi Noori, Fereshteh Rashchi, and Ataollah Babakhani, “Optimization of solvent extraction and separation of nickel and vanadium from synthetic sulfate leach liquor of power plant fly ash using D2EHPA and Cyanex 272”, *EMC (European Metallurgical Conference) 2015*, Dusseldorf, Germany, June 2015.

13. **Ehsan Vahidi**, Mehdi Noori, Fereshteh Rashchi, and Ataollah Babakhani, "Mechanism and thermodynamics of synergistic separation of vanadium and nickel from sulfate media using D2EHPA and Cyanex 272", *ISEC (International Solvent Extraction Conference) 2014*, Wurzburg, Germany, September 2014.
12. **Ehsan Vahidi**, Ataollah Babakhani and Fereshteh Rashchi, Alireza Zakeri, "Selective separation of nickel and cobalt from sulfate solutions using mixture of D2EHPA and Cyanex 302", *16th Annual Congress of Iranian Metallurgical Engineering Society (IMES)*, Tehran, Iran, November 2012.
11. **Ehsan Vahidi**, Navid Mostoufi and Fereshteh Rashchi, "Manganese recovery from electric arc furnace dust by Solvent Extraction, using D2EHPA, Cyanex 272, and Cyanex 302 as extractants", *Fray International Symposium on Metals and Materials Processing in a Clean Environment*, Cancun, Mexico, November 2011.
10. **Ehsan Vahidi**, Ataollah Babakhani, Fereshteh Rashchi and Alireza Zakeri, "Investigating the synergistic effect of D2EHPA and Cyanex 302 on nickel and cadmium separation", *The 7th International Chemical Engineering Congress*, Kish Island, Iran, November 2011.
9. **Ehsan Vahidi**, Somayyeh Dashti and Fereshteh Rashchi, "Effect of different anode compositions on the current efficiency of zinc electrowinning from acidic sulphate solutions", *EMC (European Metallurgical Conference) 2011*, Dusseldorf, Germany, June 2011.
8. **Ehsan Vahidi**, Tahereh Hosseini, Fereshteh Rashchi and Navid Mostoufi, "Experimental investigation of synergistic effect of D2EHPA and Cyanex 302 on solvent extraction of zinc from sulphate solution", *The 6th International Chemical Engineering Congress*, Kish Island, Iran, November 2009.
7. **Ehsan Vahidi**, Behzad Ghafarizadeh and Fereshteh Rashchi, "Reductive leaching of manganese from electric arc furnace dust in H₂SO₄ media", *The 6th International Chemical Engineering Congress*, Kish Island, Iran, November 2009.
6. **Ehsan Vahidi**, Mohammad Karim Nazemi and Fereshteh Rashchi, "A study on the nickel recovery from spent reforming catalyst with sulfuric acid", *13th Annual Congress of Iranian Metallurgical Engineering Society (IMES)*, Kerman, Iran, November 2009.
5. **Ehsan Vahidi**, Mohsen Aarabi, Fereshteh Rashchi, "Kinetic study on the leaching of vanadium from LD converter slag using sulfuric acid", *13th Annual Congress of Iranian Metallurgical Engineering Society (IMES)*, Kerman, Iran, November 2009.
4. **Ehsan Vahidi**, Reza Alizadeh and Fereshteh Rashchi, "Leaching optimization for using solvent extraction to recover zinc from zinc leach residues", *An International Prospective on Environmental and Water Resources, ASCE (EWRI) conference*, Bangkok, Thailand, January 2009.
3. **Ehsan Vahidi**, Mohammad Reza Tavakoli-Khaledi and Hossein Yoozbashizadeh, "Study of Micro Structure of AlNiCo₆ Produced by Liquid Phase Sintering", *12th Annual Congress of Iranian Metallurgical Engineering Society (IMES)*, Karaj, Iran, November 2008.
2. **Ehsan Vahidi**, Maryam Akhlaghi and Fereshteh Rashchi, "Stripping of D2EHPA from Fe (III) after Solvent Extraction of Zn", *12th Annual Congress of Iranian Metallurgical Engineering Society (IMES)*,

Karaj, Iran, November 2008.

1. **Ehsan Vahidi**, Fereshteh Rashchi and Kamyar Pashayi “Kinetic analysis of the effect of additives on the extraction of zinc ion in the system Zn/H₂SO₄/ D2EHPA/Kerosene, using chemical model”, *12th Annual Congress of Iranian Metallurgical Engineering Society (IMES)*, Karaj, Iran, November 2008.

PROFESSIONAL EXPERIENCES

May 2013-December 2013 Tampa, FL	Intern-Researcher ; Creative Recycling Company, Recycling of Electronic Wastes.
November 2010-August 2011 Tehran, Iran	Senior Engineer ; Mapna Boiler Company, Recycling of Boiler Fly Ashes.
November 2008-November 2010 Tehran, Iran	Senior Engineer ; Iran Standard and Quality Inspection (ISQI) Company, Recovery of Nickel and Cadmium from spent batteries.
September 2007-November 2008 Kharg Island, Boushehr, Iran	Engineer ; Kharg Petrochemical Company, Recycling of Spent Dehydrogenation Catalyst.
September 2006-September 2007 Zanjan, Iran	Researcher ; Iran Zinc Mines Development Company, Recovery of valuable metals from mine wastes.

PATENTS

October 2009 Iran	Production of AlNiCo 6 Magnetic Alloy Using Infiltration Technique, Iranian Patent No. 58576, General Office of Registration of Companies and Industrial Ownerships.
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PROFESSIONAL SERVICES

Conference Session Chair

[International Symposium on Sustainable Systems and Technology \(ISSST\)](#)
[The 26th CIRP Life Cycle Engineering Conference on Advancing Industrial Sustainability](#)

Editorial Board Member

[International Journal of Environmental Science and Toxicology and Research \(IJESTR\)](#)
[Environment, Resource and Ecology Journal](#).
[Journal of Metallurgy and Mineral Processing](#).

Scientific Committee Member

[The 26th CIRP Life Cycle Engineering Conference on Advancing Industrial Sustainability](#)

Manuscript Reviewer for Scientific Journals

Journal of Cleaner Production; Water Research; Journal of Environmental Management; Chemical Engineering Science; Hydrometallurgy; Separation and Purification Technology; Resources, Conservation & Recycling; Waste Management; Environmental Technology & Innovation; AIChE (American Institute of Chemical Engineers) Journal; Journal of Mineral Processing and Extractive Metallurgy Review; International Journal of Environmental Science and Toxicology.

Member of Professional Organizations

Member, Materials Research Society (MRS); Member, American Water Works Association (AWWA); Member, Air & Waste Management Association (A&WMA); Member, American Society of Civil Engineers (ASCE); Member, The Minerals, Metals and Materials Society (TMS).

Poster Session Organizer

The 9th Annual Ecological Sciences and Engineering Symposium, “[Inequality in Complex Systems: Characterizing Global Disparities](#)”, September 21, 2015, Purdue University, West Lafayette, IN.