



Dr. A. Khodadadi, Geoenvironmental Professor

24 March 2021

**Dr. Ahmad Khodadadi**  
**Faculty of Engineering,**  
**Tarbiat Modares University,**  
**Jalal al Ahmad Ave.**  
**Tehran, Iran**



Dr. A. Khodadadi, Geoenvironmental Professor

Dr Khodadadi Darban Ahmad

Affiliation: Full Professor of Geoenvironmental Engineering

Education: Ph.D. Civil Engineering, McGill University, Montreal, Canada

Business Address: Faculty of Engineering, Tarbiat Modares University, Tehran, Iran

Research and Professional Experience: Supervised over 100 Master and Ph. D. students and Published over 300 Research paper and 5 book in area of water and soil pollution and treatments

Professional Appointments: Chairing Modares Environmental Research Center (MERC) over 15 years

#### **Education:**

**2019 Visiting Department of Chemical and Biological Engineering, University of British Columbia, Vancouver, Canada.**

**2018 Visiting Nanyang, Water and Environment Research Institute, Nanyang Technological University, Singapore.**

**00 Post-doctorate Fellowship, Geo-environmental Engineering, Department of Civil Engineering, Laval University Quebec, Québec, Canada.**

- ❖ **98 Ph.D. Program, Geo-environmental Engineering, Department of Civil Engineering and Applied Mechanics, McGill University Montreal, Québec, Canada.**
- ❖ **93 M. Eng., Transportation Engineering, Department of Civil and Environmental Engineering, Carleton University, Ottawa, Ontario, Canada.**
- ❖ **91 B. Eng., Civil Engineering, Department of Civil Engineering, Ottawa University, Ottawa, Canada.**
- ❖ **80 B. Eng., Mining Engineering, Department of Mining Engineering, Amir Kabir University, Tehran, Iran.**

#### ❖ **Teaching Assistant Experiences Canada:**

- ❖ **in courses Soil Behavior, Static, Dynamics, Mechanics of Material, Soil Mechanic 1, Soil Mechanic 2, Steel structural design, Highway Materials, Transportation Engineering, Site Remediation, , Groundwater Hydrology Surface and Groundwater Pollution, Groundwater Modeling, Landfill Design, Geo-environmental Engineering. McGill University**
  - ❖ **Teaching courses Tarbiat Modares University Civil Engineering Department, Mining Engineering Department and Engineering Geology Department.**
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- ❖ *Soil Pollution, Groundwater and Surface Water Pollution, water resources management, Mineral Processing and Environment, Site Remediation, Environmental Geotechniques, Control and disposal of mine waste and wastewater. Soil Contaminant Transport. Mass Transfer in Porous Media. Geochemical Transport modeling. Environmental Geochemistry. Aqueous Chemistry, Environmental Impact assessment. Industrial Sustainable Development. Environmental Geology.*
- ❖ *Research Skills:*
- ❖ *Soil contamination and remediation, hazardous waste management and treatment, industrial waste water treatment, nano and bio application in for waste and wastewater treatment*

#### **Skills and Qualifications:**

*Skills with Finite Element and Finite Difference Software ground water quality and water resources*

*SEEP, SIGMA, SLOPE, ABAQUS and PATRAN Surface water modeling (SMS) water management system (WMS) Groundwater modelling (GMS) well known finite element programs, HydroGeoChem, GMS (Ground Water Contaminant Transport), Geostudio ,MOFLOW*

*HELP (Hydrological Evaluation of Landfill Performance)*

*MINTEQA2 PHREEQC (geo-chemical model)*

*BIOCHLOR (bio-transformation modeling) BOIPLUME, BIOSCREEN, UTCHEM (NAPLS Models)*

*Skills with Finite Element and Finite Difference Software in soil and Water*

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(WASP7)	Stream water quality	Water Quality Analysis Simulation Program
Mike II	Stream hydrology	Advanced, watershed model that simulates runoff and stream hydrology; can be linked to range of other modeling systems (see Mike-SHE below)
SHETRAN	Stream hydrology and water quality	Flexible, 3-D finite difference model, designed to simulate flow, and sediment and contaminant transfer in stream catchments.
HSPF	Stream hydrology and water quality	Integrated modeling system to simulate runoff and water quality (e.g. nutrients, pesticide, sediments) from agricultural and urban sources.
AGNPS	Stream hydrology and water quality	Modeling system to estimate pollution loads from agricultural watersheds; simulates surface water runoff, nutrients, sediments, chemical oxygen demand, and pesticides from point and nonpoint sources of agricultural pollution.
INCA	Stream water quality	Suite of flow, water quality and ecological models, designed to simulate dynamics and in stream biogeochemical and hydrological processes in stream systems; used to assess a wide range of environmental change issues including land use change, climate change and changing pollutant loads.
SPARROW	Stream water quality	Non-linear, regression-based model for estimating and predicting pollutant concentration and transport, on basis of monitored concentration data and information on catchment characteristics.
QUAL2K	Stream water quality	Ecologically-focused model that simulates daily water quality, as either steady-state or dynamic system. Includes estimation of biological oxygen demand, nitrogen, phosphorus, coliforms and pH.
Modflow	Groundwater hydrology and geochemistry	Suite of models providing capability to simulate groundwater recharge and flow and solute transport.
Mike-SHE	Stream and groundwater hydrology and water quality	Advanced, integrated modeling system for simulating hydrological processes in linked surface and groundwater systems, including evapotranspiration, runoff, discharge, groundwater recharge and environmental fate of contaminants.
EPANET	Drinking water systems	Network model for simulating hydraulics in water distribution systems, and movement and fate of reactive and non-reactive materials within the system (e.g. disinfection by-products).

## Book Authored

Geosynthetic application in engineering projects in (Persian)  
 Microbiological processes of wastewater treatments in (Persian)  
 The application of flotation to environmental engineering (Persian)  
 Ultraviolet Light in Water and Wastewater Sanitation (Persian)  
 Cost Estimating Manual for water Treatment Facilities (Persian)  
 Principles of Transport of Contaminants in Surface Water (Persian)

Supervised Over 100 Master and Ph D. Graduate students in Environmental Engineering in Mining and Civil Engineering Departments and published over 350 National and International conference and Journal papers



## International Publications from the Last 5 Years:

### Most of Int. Journal publication 2021

Sajjad Adhami, Ahmad Jamshidi-Zanjani, Ahmad Khodadadi Darban, 2021, Remediation of oil-based drilling waste using the electrokinetic-Fenton method, *Process Safety and Environmental Protection*, 149, pp 432-441.

Amir Zialame, Ahmad Jamshidi-Zanjani, Ahmad Khodadadi Darban, 2021, Stabilized magnetite nanoparticles for the remediation of arsenic contaminated soil, *Journal of Environmental Chemical Engineering*, V9, issue 2, pages 104821.

M Mirzaei, S Mohammadnejad, A Khodadadi, 2021, Copper recovery from Gholleh Kaftaran lead mine processing tailings, *Iranian Journal of Mining Engineering* 16, 50.

Sajad Adhami, Ahmad Jamshidi-Zanjani, Ahmad Khodadadi Darban, 2021, Phenanthrene removal from the contaminated soil using the electrokinetic-Fenton method and persulfate as an oxidizing agent, *Chemosphere*, 266, pages 128988.

Babak Koohestani, Pozhhan Mokhtari, Erol Yilmaz, Forough Mahdipour, Ahmad Khodadadi Darban, 2021, Geopolymerization mechanism of binder-free mine tailings by sodium silicate, *Construction and Building Materials*, 288, pages 121217.

Gholamreza Asadollahfardi, Mohammad Sina Sarmadi, Milad Rezaee, Ahmad Khodadadi-Darban, Mahdie Yazdani, Juan Manuel Paz-Garcia, 2021, Comparison of different extracting agents for the recovery of Pb and Zn through electrokinetic remediation of mine tailings, *Journal of Environmental Management*, 279, pages 111728.

Ali Barati Fardin, Ahmad Jamshidi-Zanjani, Ahmad Khodadadi Darban, 2021, Application of enhanced electrokinetic remediation by coupling surfactants for kerosene-contaminated soils: Effect of ionic and nonionic surfactants, *Journal of Environmental Management*, 277, pages 111422.

### Most of Int. Journal publication 2020

Alieh Saeedi, Ahmad Jamshidi-Zanjani, Ahmad Khodadadi Darban, 2020, A review on different methods of activating tailings to improve their cementitious property as cemented paste and reusability, *Journal of Environmental Management*, V270, 110881.

Afshin Nasiri, Ahmad Jamshidi-Zanjani, Ahmad Khodadadi Darban, 2020, Application of enhanced electrokinetic approach to remediate Cr-contaminated soil: Effect of chelating agents and permeable reactive barrier, *Environmental Pollution*, Volume 266, Part 1, 115197.

Zeinab Piervandi, Ahmad Khodadadi Darban, Seyyed Mohammad Mousavi, Mahmoud Abdollahy, Gholamreza Asadollahfardi, Valerio Funari, Enrico Dinelli, Richard David Webster, Mika Sillanpää, 2020, *Chemosphere*, 127288.

AK Darban, A Shahedi, F Taghipour, A Jamshidi-Zanjani, 2020, A review on industrial wastewater treatment via electrocoagulation processes, *Accepted Current Opinion in Electrochemistry*.

Babak Koohestani, Ahmad Khodadadi Darban, Pozhhan Mokhtari, Esmaeel Darezereshki, Erol Yilmaz, Elif Yilmaz, 2020, Influence of Hydrofluoric Acid Leaching and Roasting on Mineralogical Phase Transformation of Pyrite in Sulfidic Mine Tailings, *Minerals*, V 10, No. 6, 513.

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M.A Jahromi, A Jamshidi-Zanjani, AK Darban, 2020, Heavy metal pollution and human health risk assessment for exposure to surface soil of mining area: a comprehensive study, *Environmental Earth Sciences* 79 (14), 1-18.

Mohamad Reza Samadzadeh Yazdi, Mahmood Abdollahi, Seyed Mohamad Mousavi, Ahmad Khodadadi Darban, 2020, Comparison of copper dissolution in chalcopyrite concentrate bioleaching with *Acidianus brierleyi* in different initial pH, Accepted *Journal of Mining and Environment*.

Sajad Adhmai, Ahmad Jamshidi, Ahmad Khodadadi, 2020, Investigation of phenanthrene removal from contaminated soil using elektokinetic combined with fenton, *Modares Civil Engineering journal*, V 20, issue 1.

Most of Int. Journal publication 2019

Zeinab Piervandia, Ahmad Khodadadi Darban\*, Seyyed Mohammad Mousavi, Mahmoud Abdollahya, Gholamreza Asadollahfardi, Valerio Funari, Enrico Dinelli, 2019, Minimization of metal sulphides bioleaching from mine wastes into the aquatic environment, *Ecotoxicology and Environmental Safety* 182, 109443.

E Tavasoli, G Asadollahfardi, AK Darban, M Asadi, 2019, Simulation of cyanide oxidation using calcium and sodium hypochlorite in the Motah Gold Mine Tailing Dam, Iran, *Desalination and water treatment*, 145, 273-279.

B Eyvazi, A Jamshidi-Zanjani, AK Darban, 2019, Immobilization of hexavalent chromium in contaminated soil using nano-magnetic  $\text{MnFe}_2\text{O}_4$ , *Journal of hazardous materials*, 365, 813-819.

B Koohestani, AK Darban, P Mokhtari, E Yilmaz, E Darezereshki, 2019, Comparison of different natural fiber treatments: a literature review, *International Journal of Environmental Science and Technology* 16 (1), 629-642.

P. Karimi, A. Khodadadi Darban<sup>1\*</sup> and Z. Mansourpour<sup>2</sup>, 2019, A finite element model to simulate magnetic field distribution and laboratory studies in wet low-intensity magnetic separator, *Journal of Mining and Environment (JME)*, Vol. 10, No. 3, 2019, 717-727.

H Shadi Naghadeh, M Abdollahy, A Khodadadi Darban, ..., 2019, Mechanical activation of phosphate concentrates to enhance dissolution efficiency of rare earth elements from a kinetic viewpoint, *Journal of Mining and Environment*,

Y Kianinia, MR Khalesi, M Abdollahy, A Khodadadi Darban, 2019, Leaching of gold ores with high cyanicides: a physico-chemical modeling approach, *Journal of Mining and Environment*, 10, 87-94.

AK Darban, RD Webster, HH Yarhosseini, B Malekmohammadi AR Yavari and Arabyarmohammadi, 2019, Environmental Impact Assessment (EIA) of a gold mine tailing through the multi-criteria decision making tool, *Journal of Civil Engineering and Environmental Sciences*, DOI: <http://dx.doi.org/10.17352/jcees>.

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### Most of Journal Publication 2018

M Mohamadiun, B Dahrazma, SF Saghravani, AK Darban, 2018, Removal of cadmium from contaminated soil using iron (III) oxide nanoparticles stabilized with polyacrylic acid, *Journal of Environmental Engineering and Landscape Management* 26 (2), 98-106

E Darezereshki, A khodadadi Darban, M Abdollahy, 2018, synthesis of magnetite nanoparticles from iron ore tailings using a novel reduction-precipitation method, *Journal of Alloys and Compounds* 749, 336-343

Koohestani, AK Darban, P Mokhtari , 2018 , A comparison between the influence of superplasticizer and organosilanes on different properties of cemented paste backfill, *Construction and Building Materials* 173, 180-188.

B Koohestani, AK Darban, E Yilmaz, P Mokhtari, I Ganetri, 2018 Influence of amine and vinyl functional groups of silanes on total performance of thermoplastic-based composites *Construction and Building Materials* 172, 98-105

H Arabyarmohammadi, AK Darban, M Abdollahy, R Yong, B Ayati , 2018 ,Utilization of a novel chitosan/clay/biochar nanobiocomposite for immobilization of heavy metals in acid soil environment, *Journal of Polymers and the Environment* 26 (5), 2107-2119.

Y Kianinia, L Hnedkovsky, G Senanayake, C Akilan, MR Khalesi, A. K. Darban, 2018, Heat Capacities of Aqueous Solutions of  $K_4Fe(CN)_6$ ,  $K_3Fe(CN)_6$ ,  $K_3Co(CN)_6$ ,  $K_2Ni(CN)_4$ , and  $KAg(CN)_2$  at 298.15 K, *Journal of Chemical & Engineering Data* 63 (5), 1773-1779

M Eskandari, MZ Khatir, AK Darban, M Meshkini, 2018 Decreasing Ni, Cu, Cd, and Zn heavy metal magnetite-bentonite nanocomposites and adsorption isotherm study, *Materials Research Express* 5 (4), 045030

B Koohestani, AK Darban, E Darezereshki, P Mokhtari, E Yilmaz 2018, The influence of sodium and sulfate ions on total solidification and encapsulation potential of iron-rich acid mine drainage in silica gel, *Journal of Environmental Chemical Engineering* 6 (2), 3520-3527.

M Mohammadiun, B Dahrazma, SF Saghravani, A Khodadadi Darban, 2018, Using selective sequential extraction techniques to evaluate tendency of soil fractions in Cd removal by  $Fe_3O_4$  nanoparticles in continuous flow system, *Journal of Mining and Environment* 9 (2), 473-484

Y Kianinia, MR Khalesi, M Abdollahy, G Heftner, G Senanayake, A K. Darban, 2018, Predicting cyanide consumption in gold leaching: A kinetic and thermodynamic modeling approach, *Minerals* 8 (3), 110

H Arabyarmohammadi, AK Darban, SE van der Zee, M Abdollahy, B Ayati , 2018, Fractionation and leaching of heavy metals in soils amended with a new biochar nanocomposite, *Environmental Science and Pollution Research* 25 (7), 6826-6837

B Koohestani, AK Darban, P Mokhtari, E Yilmaz, E Darezereshki, 2018 Comparison of different natural fiber treatments: a literature review, *International Journal of Environmental Science and Technology*, 1-14

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M Mohammadiun, B Dahrazma, SF Saghravani Ahmad Khodadadi Darban, 2018 Using Selective Sequential Extraction Techniques to Evaluate the Tendency of Soil Fractions in Cd Removal by Fe<sub>3</sub>O<sub>4</sub> Nanoparticles in Continuous Flow System,... - Journal of Mining and Environment,

Hoda Arabyarmohammadi, Ahmad Khodadadi Darban, Mahmoud Abdollahy, Bitay Ayati, 2018, Simultaneous immobilization of heavy metals in soil environment by pulp and paper derived nanoporous biochars, Journal of Environmental Health Science and Engineering, 16, 109-119.

### Most of International Journal Publication 2017

M Shahverdi, A Khodadadi Darban, M Abdollahy, 2017 Investigation of effect of sulfate ion on xanthate consumption in galena flotation based on thermodynamic diagrams... - Journal of Mining and Environment

H Ijadpanah-Saravi, M Safari, B Noruzi-Masir, AK Darban, P Bakhshi, 2017 Intelligent tools to model photocatalytic degradation of beta-naphthol by titanium dioxide nanoparticles  
Journal of Chemometrics 31 (9)

M Rahimi, A Khodadadi, B Ayati, 2017, Photolysis system performance in petroleum hydrocarbons removal from wastewater and its modeling, Journal of civil engineering (journal of school of engineering) 28 (216), 1-8

M Hasani, A Khodadadi, SMJ Koleini, AH Saeedi, AM Meléndez, 2017, Simultaneous leaching of Pt, Pd and Rh from automotive catalytic converters in chloride-containing solutions, Journal of Physics: Conference Series 786 (1), 012042

M Hasani, A Khodadadi, SMJ Koleini, AH Saeedi, Y Pérez-Pacheco, 2017 Platinum leaching from automotive catalytic H Arabyarmohammadi, AK Darban, SE van der Zee, 2017, Fractionation and leaching of heavy metals in soils amended with a new biochar nanocomposite ... - Environmental Science and Pollution Research, pp 1-12.

M Shahverdi, A Khodadadi Darban, M Abdollahy, 2017 Investigation of effect of sulfate ion on xanthate consumption in galena flotation based on thermodynamic diagrams... - Journal of Mining and Environment

H Ijadpanah-Saravi, M Safari, B Noruzi-Masir, AK Darban, P Bakhshi, 2017 Intelligent tools to model photocatalytic degradation of beta-naphthol by titanium dioxide nanoparticles  
Journal of Chemometrics 31 (9)

FI Tameh, G Asadollahfardi, AK Darban, 2017, Mathematical model for reactive transport of heavy metals in soil column: Based on PHREEQC and HP1 simulators, Advances in environmental research-an international journal 6 (1), 67-81

B Safavila, G Asadollahfardi, A khodadadi Darban, 2017 Cyanide removal simulation from wastewater in the presence of titanium dioxide nanoparticles, Advances in nano research 5 (1), 27-34

H Arabyarmohammadi, AK Darban, M Abdollahy, R Yong, B Ayati, 2017 Utilization of a Novel Chitosan/Clay/Biochar Nanobiocomposite for Immobilization of Heavy Metals in Acid Soil Environment, Journal of Polymers and the Environment, 1-13.

G Asadollahfardi, M Nasrollahi, M Rezaee, AK Darban, 2017, Nickel removal from low permeable kaolin soil under unenhanced and EDTA-enhanced electrokinetic process, Advances in Environmental Research 6 (2), 147-158

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M Rahimi, A Khodadadi, B Ayati, 2017, Photolysis system performance in petroleum hydrocarbons removal from wastewater and its modeling, *Journal of civil engineering (journal of school of engineering)* 28 (216), 1-8

M Hasani, A Khodadadi, SMJ Koleini, AH Saeedi, AM Meléndez, 2017, Simultaneous leaching of Pt, Pd and Rh from automotive catalytic converters in chloride-containing solutions, *Journal of Physics: Conference Series* 786 (1), 012042

M Hasani, A Khodadadi, SMJ Koleini, AH Saeedi, Y Pérez-Pacheco, 2017 Platinum leaching from automotive catalytic converters with aqua regia, *Journal of Physics: Conference Series* 786 (1), 012043

### **Most of International Journal Publication 2016**

G S Saeidnia, G Asadollahfardi, AK Darban, M Mohseni, 2016, Simulation of antimony adsorption on nano-zero valent iron and kaolinite and analyzing the influencing parameters, *Water Science and Technology*.

A Hooshmandfar, B Ayati, AK Darban, Optimization of material and energy consumption for removal of Acid Red 14 by simultaneous electrocoagulation and electroflotation *Water Science and Technology* 73 (1), pp. 192-202.

S Saeidnia, Asadollahfardi AK Darban, 2016, Simulation of adsorption of antimony on zero-valent iron nanoparticles coated on the industrial minerals (kaolinite, bentonite and perlite) in mineral effluent, *Desalination and Water Treatment*.

M Hasani, SMJ Koleini, A Khodadadi, 2016, Kinetics of Sphalerite Leaching by Sodium Nitrate in Sulfuric Acid, *Journal of Mining and Environment* 7 (1), 1-12.

Asadollahfardi, AK Darban, N Noorifar, M Rezaee, 2016, Mathematical simulation of surfactant flushing process to remediate diesel contaminated sand column, *Advances in Environmental Research* 5 (4), 213-224

S Saeidnia, G Asadollahfardi, A Khodadadi Darban, 2016 Simulation of adsorption of antimony on zero-valent iron nanoparticles coated on the industrial minerals (kaolinite, bentonite and perlite) in mineral effluent, *Desalination and Water Treatment* 57 (47), 22321-22328

H Ijadpanah-Saravi, S Dehestaniathar, A Khodadadi-Darban, 2016, Photocatalytic decomposition of cyanide in pure water by biphasic titanium dioxide nanoparticles, *Desalination and Water Treatment* 57 (43), 20503-20510

H Ijadpanah-Saravi, M Zolfaghari, A Khodadadi, P Drogui, 2016, Synthesis, characterization, and photocatalytic activity of TiO<sub>2</sub>-SiO<sub>2</sub> nanocomposites, *Desalination and Water Treatment* 57 (31), 14647-14655

Saeidnia, G Asadollahfardi, AK Darban, M Mohseni, 2016, Simulation of antimony adsorption on nano-zero valent iron and kaolinite and analyzing the influencing parameters, *Water Science and Technology* 73 (10), 2493-2500

F Jafari, S Javadi, G Golmohammadi, K Mohammadi, A Khodadadi, 2016, Groundwater risk mapping prediction using mathematical modeling and the Monte Carlo technique, *Environmental Earth Sciences* 75 (6), 491

H Ijadpanah-Saravi, S Dehestaniathar, A Khodadadi, M Safari, 2016, Optimization of photocatalytic degradation of  $\beta$ -naphthol using nano TiO<sub>2</sub>-activated carbon composite, *Desalination and Water Treatment* 57 (10), 4708-4719

A Hooshmandfar, B Ayati, AK Darban, 2016, Optimization of material and energy consumption for removal of Acid Red 14 by simultaneous electrocoagulation and electroflotation *Water Science and Technology* 73 (1), 192-202

M Moshtagh, A Khodadadi, MJ Kalini, H Arabyarmohammadi, 2016, Transfer of heavy metals from the tailings dam and its reduction using activated carbon plant, bauxite Jajarm, *Iranian journal of mining engineering (IRJME)* 10 (29), 31-39

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AK Darban, H Arabyarmohammadi, M Abdollahy, B Ayati, 2016, The Role of Nanoporous Biochars Functional Groups for Immobilization of Heavy Metals in Aqueous Solution, Materials Science Forum 860, 43-46

M Hasani, SMJ Koleini, A Khodadadi, 2016, Kinetics of sphalerite leaching by sodium nitrate in sulfuric acid, Journal of Mining and Environment 7 (1), 1-12