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Dr. A K. Darban

Visiting Scholar at NERRI (Nanyang Environment & Water Research Institute)

1 Cleantech Loop, CleanTech One #06-08, Singapore 637141 (Off Nanyang Avenue/Cleantech View) T 65-65923015 and Mobile and what up No. Phone: +6598686590



### **Education:**

- 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 Experiences:
- in courses Soil Behavior, 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.
- 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
- \* Research Skills:
- Soil contamination and remediation, hazardous waste management and treatment, industrial waste water treatment, nano and bio application in for waste wastewater treatment

### **Skills and Qualifications:**

Skills with Finite Element and Finite Difference Software ground water quality and water resourses
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



(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		Suite of models providing capability to simulate groundwater recharge and flow and solute transport.
Mike-SHE	Steam 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)

Ultraviolent 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 publied over 350 National and International conference and Journal papers Most of International Journal publication 2017

, B., 2012, Nano, bio adsorption of uranium by iron oxide coated on sugar cane





### Int. Proceeding Conf. papers.

- 1. Darban, A. K., Yong R. N., Mohamed, A. M. 0, (1995). Multi Component Contaminant Transport Of Heavy Metals in Clay Barrier System, Second Civil Engineering Graduate Students Society, CEGSS Conference at McGill University. March 16, 1995.
- 2. Hart, J., Darban A. K., Logrange, J., Hadjinicolaou J., (1995). An Environmental Audit of a Deinking Plant: Regulatory Issue", CEGSS Conference at McGill University, March 16, 1995.
- 3. Hart, J., Darban, A. K., Logrange, J., Hadjinicolaou , J., (1995). Proposed Fixed Crossing Linking Prince Edward Island and New Brunswick Across the Northumberland Strait EIA Risk-Scoring Methodology, CEGSS Conference at McGill University, March 16, 1995.
- 4. Darban A. K., Yong, R N., and Mohamed, A. M., (1997). The Role of Organic and Inorganic Complexing Agents on the Heavy Metals Partitioning in Clay Barrier, Fourth CEGSS conference at McGill University, April 14, 1997.
- 5. Darban A. K., Yong, R N., and Mohamed, A. M., (1997). Migration of Multi-Component Contaminants of Heavy Metals in a Landfill Bottom Liner, 19th Canadian Waste Management Conference in St. John's Newfoundland, September 15-18, 1997.
- 6. Yong, R. N., Darban, A. K., (1998). Modeling Complexation Influence on Heavy Metals Transport In Clay Barrier, International Conference on Computer Applications in Environmental Engineering 29-30 September 1998, Selagor, Malaysia
- 7. Darban, A. K., Foriero, A. K., Yong, R. N., (1999). The Influence of Clay Mineralogy on the Retention of Heavy Metals in Acidic Environments, Mineralogy and Environment conference, 7–8 January 1999, University of Aberdeen, U. K.
- 8. Darban A. K., L, Halim, A. O., and Haas, (1996). Long Term Performance of Asphalt Concrete Pavement Presented in CCEISC Conference, Montreal, July 20, 1996, pp 379-386.
- 9. Darban A. K., Yong, R. N., and Mohamed, A. M., (1997). Prediction of Multi-Component Radioactive Waste Migration in Clay Barrier Via Coupled Solute Transport and Chemical Equilibrium Speciation", 22d CAN/CNS Annual Student Conference, March 13-15 New Brunswick, Canada, pp 91-96.
- 10. Darban, A. K., Foriero, A. and Yong, R. N., (2000). The Effect of Soil Composition, Moisture Content on Dry density and Hydraulic Conductivity of Clayey Soils, ASTM, STP 1384, Constructing and Controlling Compaction of Earth Fills, Edited by D W Shanklin 336 pages., 2000.
- Darban, A. K., Foriero, A., and R.N. Yong (2000). Concentrations Effects of EDTA and Chloride On Retention of trace Metals in Clays, Engineering Geology Journal, Elsevier Publication, Volume 57, Issue 1-2, June 2000 pp 81 -94

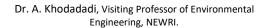
# Dr. A. Khodadadi, Visiting Professor of Environmental Engineering, NEWRI.



- 12. Darban, A. K, Foriero, A. K., Yong, R. N., (1999). Evaluation of EDTA and Sodium Acetate to Remediate Different Clay Compacted Soil Contaminated with Lead, Canadian Geotechnical Conference, Saskatewan, 23-26 Oct. 1999, pp 709-717.
- 13. Darban, A. K., Foriero, A. K., Yong, R. N., (1999). Hydro-Thermal and Geo-Chemical Mass Transport of Heavy Metals in Groundwater, NRC Water Conference, Sep. 1999, Toronto, Canada.
- 14. Darban, A. K., Foriero, A. K., Yong, R. N. (1999). Modelling the Transport of Multi-component Contaminants in Groundwater, International Conference on Calibration and Reliability in Groundwater Modelling Coping with uncertainty, September 20-23, 1999, Swiss Federal Institute of Technology Zürich (ETH), Switzerland.
- 15. Foriero A., Darban, A. K. A, Yong, R. N. (1999). Modeling the Complexation Effect on the Transport of Lead through Compacted Clay Soils, Hazard Assessment and Control of Environmental Contaminants, Ecohazard 99, 3rd IAWQ Specialized Conference, 5-8 December 1999, Shiga, Japan.
- 16. Darban, A. K., Foriero, A. and Yong, R. N., (2000). Environmental Effects of Sodium Chloride on De-icing of Pavement Surfaces, SNOW 2000, Transportation Research Board, TRB Symposium, Sep. 2000.
- 17. Khodadadi, A. Kheradmand & R.N. Yong Mangenese and Iron Removal from Groundwater Thorough Aeration: Water Pollution 2003, 18 20 June 2003, Cadiz, Spain.
- 18. A.K. Darban, and R.N. Yong (2002), Remediation of Lead-contaminated Compacted Clays, Proceeding of Oman International Conference on Waste Management, Muscat, Oman, Dec 16-18.
- 19. Darban, A. K, Yong, R. N., 2003, Remediation of lead contaminated compacted clays, Masqat, Oman, pp 1-8
- 20. A.Khodadadi, and A.Hajati, and M Koeini, 2003, The Study of Degree of Liberation of Zinc and Iron Oxide Minerals from Tailing of Goshfil Mine in Iran, Proceeding of International Seminar on Mineral Processing Technology, Goa, India, pp 74-80.
- 21. Gonbadi, Taheri, Khodadadi, 2004, Assessing Changing in Permeability and pH of Sand Mixed Due to Oil Contamination, Proceedings of Int. Conf. of Geotechnical end Geoenvironmental Eng. Sharejeh, United Arab Emirates.
- 22. Darban, A. K. Yong, R., 2004, Prediction of Multi-Component Radioactive Waste Migration in Clay Barrier via Coupled Solute Transport and Chemical Equilibrium Speciation, Proceedings of Int Conf. Of low Radioactive Waste, Cordoba, Spain. pp 71-75.
- 23. Khodadadi., M. Abdlahi, P. Teimuri, 2005 Cyanide removal from the wastewater of Mutch gold processing plant using hydrogen peroxide, World Mining Cong., Tehran, 7-11 Nov. 2005, pp 137-140.
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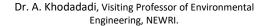


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- 26. K. Darban, A. Moradkhani, M. Moghadam, R. Gheitasi, (2006) Production of ZnO powder using precipitation transformation method, International Congress on Nanoscience and Nanotechnology in Iran (ICNN2006) Congress Proceedings.
- 27. Darban, A. K., Yosefi, D., 2006, Bioremediation of TPH Contaminated Soils with Urban Sewage Sludge, Malaysia.
- 28. Darban, A. K, Rahmani, A. Koleini, J., 2007, ´A Study on Leaching Behavior of Copper Oxide Ore f Sarcheshmeh Mine, MPT congress, Mumbai, India.
- 29. Abdolahi, M., Darban, A.K., Karmi, A., 2007, Optimization of Roasted Sphalerite Concentrate Leaching Conditions to Dissolve Maximum Amount of Indium, MPT congress, Mumbai, India.
- 30. Farzanegan, A., Darban, A.K., Azami, M, 2007, Calculation and Scale Up of Breakage and Selection Functions of Sangan Iron Ore From a Laboratory Ball Mill, MPT congress, Mumbai, India.
- 31. Darban, A.K., Rabieh, A., 2007, Mathematical Modeling of Oxide Copper Heap Leaching, MPT congress, Mumbai, India.
- 32. Salari, M, Darban, A.K. Prediction of AMD Using Kinetic Methods in Songon Mine, MPT congress, Mumbai, India.
- 33. Darban, A.K, Erfani, A., 2008, Nanoclay for the Removal of Heavy Metals from Aqueous Solutions, Int. cong. On Env. Eng. Girson, Turkey.
- 34. Ebadi, T., Andalib A., and Darban, A.K., 2008, Effect of a non-ionic surfactant solution on removal of Naphthalene, 1-Methylnaphthalene and 1Ethylnaphthalene from artificially crude oil, Int. cong. On Env. Eng. Girson, Turkey.
- 35. K. Darban, Salehi, Kokabi, Hassani, (2008), The effect of nano clay on long term performance of asphalt, Paper published TRA 2008 conference in April 2008 in Ljubljana, Slovenia.
- 36. Darban, A.K, Ganjidout, H., Habibi, M., 2008, The effect of Tehran oil refineries on groundwater pollution in the Vicinity area, Int. cong. On Env. Eng. Girson, Turkey.





- 37. Darban, A.K, Partani, S., 2008 Assessment of sample frequency for surface water quality evaluation using water framework directive, Int. cong. On Env. Eng. Girson, Turkey.
- 38. Darban, A.K., Salehian, E., 2008- Remediation of Diesel Contaminated Soils Using Anionic Surfactantse, Int. cong. On Env. Eng. Girson, Turkey.
- 39. Darban. A.K., Ahamdi, M., 2010, Heavy Metal Removal from Waste Waters by Ion Flotation, 15th ICHMET, Poland.
- 40. Sedaght B., Darban, AK., Moradkhani, J., Koleini, S.J. 2010, Study of the Effective Parameters to Transport of Heavy Metals from Zinc Leaching Plant Residue to the Environment, 15th ICHMET, Poland.
- 41. A.Shahbazi, A.K. Darban, S. J. Koleini and H. Shadi 2015, Use of Coated Magnetic Nanoparticles with Cyanex272 for Heavy Metal Removal Extraction from Wastewater International Conference on Chemical, Environmental and Biological Sciences (CEBS-2015) March 18-19, 2015 Dubai UAE. pp 186.190.





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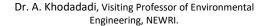
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Ahmad Khodadadi Darban Mokhtar Aazami, Angel M. Meléndez, Mahmood Abdollahy, Ignacio Gonzalez 2010, Electrochemical study of orpiment (As2S3) dissolution in NaOH Solution, Hydrometallurgy 105, pp 296-303.

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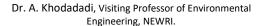
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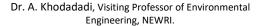
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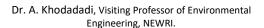
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