

Identifying Data

Name: Ali Akbarisehat, PhD

Current Position: Postdoctoral Scholar, Department of Radiology (Interventional Radiology), Stanford University School of Medicine, Stanford, CA (09/16/2025 – 09/15/2026). Mentor: Alexander Vezeridis, MD, PhD.

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Education History

Sep 1999 – May 2004 – B.Sc. Applied Chemistry, Bu-Ali Sina University, Hamadan, Iran
Projects: Spectroscopic kinetics of d–d transition complexes in organic solvents; Solid-phase extraction of beryllium from river water with AAS.

Sep 2006 – Dec 2008 – M.Sc. Analytical Chemistry, University of Tehran, Tehran, Iran
Thesis: Determination of Pharmaceutical and Pesticides at a Nanomolar Level Using FFT Cyclic Voltammetry Under Flow Conditions.

Jan 2009 – May 2015 – Ph.D. Chemistry (Electrochemistry & Nanomaterials Synthesis), University of Tehran, Tehran, Iran
Thesis: Modified Enzymatic Electrode by Functionalized Graphene for Electrochemical Biosensors.

Postdoctoral and Research Training

Jun 2019 – Dec 2020 – Postdoctoral Fellow, Nanomaterials & Polymer Nanocomposites Laboratory, University of British Columbia Okanagan, Kelowna, Canada

Mar 2022 – Mar 2024 – Postdoctoral Research Associate, Department of Materials Science & Engineering, University of Virginia, Charlottesville, VA

Employment

Sep 2008 – May 2010 – Research Assistant, Center of Excellence in Electrochemistry, University of Tehran, Tehran, Iran

Jul 2010 – Dec 2010 – Consultant, Geothermal Project, Renewable Energy Organization of Iran, Meshginshahr, Ardabil, Iran

Sep 2009 – Jun 2018 – Chemistry Teacher, National Iranian Organization for Gifted and Talented Education (NIOGATE), Tehran, Iran

Jan 2013 – Feb 2018 – Supervisor, Nanomaterials Synthesis Lab, Saramadan Andishe Avina Startup Company, Tehran, Iran

Mar 2024 – Feb 2025 – Research & Development Research Scientist, MERGE Chemistry, IV Groups, Christiansburg, VA

Honors and Awards

Jul 2008 – DAAD fellowship on nondestructive analysis of concrete samples, Federal Institute for Materials Research and Testing (BAM), Berlin, Germany

Jun 2015 – Certificate in graphene oxide synthesis, Iran Nanotechnology Innovation Council, Tehran, Iran

Jan 2020 – Mitacs funding program on the synthesis of graphene quantum dots with blue and red emissions (Albany Graphite, Canada)

Research Interests

Electrochemical biosensors and assay development; Catalyst design; Nanomaterials synthesis and applications in energy storage; Biosensors for disease diagnosis.

Technical Skills

Electrochemistry (CV, potentiostatic/potentiodynamic methods, EIS; battery and energy harvester testing); Spectroscopy (UV-Vis, PL, FTIR, Raman); Materials characterization (XPS, XRD, SEM, EDS); Thermal analysis (TGA, DSC).

Software: MS Office, OriginPro; familiarity with MATLAB and LabVIEW.

Bibliography

Peer-Reviewed Original Research Articles

1. **A. Afkhami**, T. Madrakian, A. Afshar Asl, **A. Akbari Sehat**. *Solid-phase extraction flame atomic absorption spectrometric determination of ultra-trace beryllium*. *Analytica Chimica Acta*. 2001; 437: 17–22.
2. P. Norouzi, M.R. Ganjali, **A. Akbari Sehat**, S. Mirahmadi, B. Larijani. *Determination of Propylthiouracil at a nanomolar level using fast Fourier transformation continuous cyclic voltammetry under flow conditions*. *Chemical Analysis*. 2007; 52(3): 399–410.
3. H. Mohammad-Shiri, M. Ghaemi, S. Riahi, **A. Akbari Sehat**. *Computational and Electrochemical Studies on the Redox Mechanism of Dopamine in Aqueous Solutions*. *International Journal of Electrochemical Science*. 2011; 6: 317–336.
4. M.R. Pourjavid, **A. Akbari Sehat**, M. Rezaee, M.H. Hosseini, T. Razavi. *Design and Construction of High-Sensitive and Selective Dysprosium(III) Electrochemical Membrane Sensor Based on a Thiourea Derivative*. *International Journal of Electrochemical Science*. 2012; 7: 5133–5146.
5. M.R. Pourjavid, S.R. Yousefi, M. Haji Hosseini, M. Rezaee, T. Razavi, **A. Akbari Sehat**. *Determination of neodymium(III) in aqueous and soil samples with use of a high-sensitive and selective membrane sensor*. *International Journal of Electrochemical Science*. 2012; 7: 5147–5162.
6. M.R. Pourjavid, **A. Akbari Sehat**. *Preparation of a modified octadecyl silica membrane disk for solid-phase extraction of lead(II) ions in different real samples and their determination with ICP-AES*. *Journal of Membrane and Separation Technology*. 2012; 1: 9–18.
7. M.R. Pourjavid, M. Arabieh, **A. Akbari Sehat**, M. Rezaee, M. Haji Hosseini, S.R. Yousefi, M.R. Jamali. *Flame atomic absorption spectrometric determination of Pb(II) and Cd(II) in natural samples after column graphene oxide-based solid-phase extraction using 4-Acetamidothiophenol*. *Journal of Brazilian Chemical Society*. 2014; 25: 2063–2072.

8. M.R. Pourjavid, **A. Akbari Sehat**, M. Haji Hosseini, M. Rezaee, M. Arabieh, S.R. Yousefi, M.R. Jamali. *Use of 2-(tert-butoxy)-N-(3-carbamothioylphenyl)acetamide and graphene oxide for separation and preconcentration of Fe(III), Ni(II), Cu(II) and Zn(II) ions in different samples*. Chinese Chemical Letters. 2014; 25: 791–793.
9. M.R. Pourjavid, **A. Akbari Sehat**, M. Arabieh, S.R. Yousefi, M. Haji Hosseini, M. Rezaee. *Column solid-phase extraction and flame atomic absorption spectrometric determination of manganese(II) and iron(III) ions in water, food and biological samples using 3-(1-methyl-1H-pyrrol-2-yl)-1H-pyrazole-5-carboxylic acid on synthesized graphene*. Materials Science and Engineering: C. 2014; 35: 370–378.
10. M.R. Pourjavid, M. Arabieh, S.R. Yousefi, M.R. Jamali, M. Rezaee, M. Haji Hosseini, **A. Akbari Sehat**. *Study on column SPE with synthesized graphene oxide and FAAS for determination of trace amount of Co(II) and Ni(II) ions in real samples*. Materials Science and Engineering: C. 2015; 47: 114–122.
11. **A. Akbari Sehat**, A.A. Khodadadi, F. Shemirani, Y. Mortazavi. *Fast Immobilization of Glucose Oxidase on Graphene Oxide for Highly Sensitive Glucose Biosensor Fabrication*. International Journal of Electrochemical Science. 2015; 10: 272–286.
12. M.R. Pourjavid, M. Arabieh, S.R. Yousefi, **A. Akbari Sehat**. *Interference-free and fast determination of manganese(II), iron(III) and copper(II) ions in different real samples by flame atomic absorption spectroscopy after column graphene oxide-based solid-phase extraction*. Microchemical Journal. 2016; 129: 259–267.
13. M. Keshavarz Moraveji, A. Ghaffarkhah, F. Agin, M. Talebkeikhah, A. Jahanshahi, A. Kalantar, S. Fazel Amirhosseini, M. Karimifard, S. Iman Mortazavipour, **A. Akbari Sehat**, M. Arjmand. *Application of amorphous silica nanoparticles in improving the rheological properties, filtration and shale stability of glycol-based drilling fluids*. International Communications in Heat and Mass Transfer. 2020; accepted.
14. A. Ghaffarkhah, M. Afrand, M. Talebkeikhah, **A. Akbari Sehat**, M. Keshavarz Moraveji, F. Talebkeikhah, M. Arjmand. *On evaluation of thermophysical properties of transformer oil-based nanofluids: A comprehensive modeling and experimental study*. Journal of Molecular Liquids. 2020; 300: 112249.
15. M. Amirmazlaghani, A. Rajabi, Z. Pour-Mohammadi, **A. Akbari Sehat**. *Betavoltaic Battery based on reduced-Graphene-Oxide/Si Heterojunction*. Superlattices and Microstructures. 2020; 145: 106602.
16. Farhad Ahmadijokani, Shima Tajahmadi, Mashallah Rezakazemi, **Ali A Sehat**, Hossein Molavi, Mohammad Arjmand, Nagaraj P.P. Shetti, Tejraj Aminabhavi. *Aluminium-based Metal-Organic Frameworks for Adsorptive Removal of Anti-Cancer (Methotrexate) Drug from Aqueous Solutions*. Journal of Environmental Management. 2021; 277: 111448.
17. Valentin Romanovski, Xintai Su, Lijuan Zhang, Andrei Paspelau, Andrey Smorokov, **Ali Akbari Sehat**, Abayomi Adewale Akinwande, Natalia Korob, Maksim Kamarou. *Approaches for filtrate utilization from synthetic gypsum production*. Environmental Science and Pollution Research. 2023; 30(12): 33243–33252.
18. **Ali Akbarisehat**, Giovanni Zangari. *Electricity generation via metal oxide–air moist interaction*. Materials Today Communications. 2024; 40: 109744.

Review Articles

1. Ahmadreza Ghaffarkhah, Ehsan Hosseini, Milad Kamkar, **Ali Akbari Sehat**, Sara Dordanihaghghi, et al. *Synthesis, Applications, and Prospects of Graphene Quantum Dots: A Comprehensive Review*. Small. 2021;2102683.

Book Chapters

1. **Akbari Sehat A.** *Elements*. Nashre Olgoo; 2010.
2. Ganjali MR, Norouzi P, Faridbod F, **Akbari Sehat A.** *Liquid membrane sensors for hydrogen and main group cations*. In: *Electrochemical Sensors*. Research Signpost; 2011.
3. Faridbod F, **Akbari Sehat A**, Larijani B. *Amperometric sensors*. In: *Electrochemical Sensors*. Research Signpost; 2011.
4. **Akbari Sehat A.** *Basic Chemistry*. Pazhoohan Javan; 2017.
5. Romanovski V, Dubina A, **Akbari Sehat A**, Su X, Moskovskikh D. *Green and Bio-waste-based Materials for Energy Production, Conversion, Storage, and Hybrid Technologies*. CRC Press; 2024. pp.118–135.

Conference Papers

1. **A. Akbarisehat**, G. Zangari. *Direct electrodeposition of graphene on copper through aqueous media*. Postdoc Symposium, University of Virginia, Spring 2023.
2. S. Ghaderahmadi, M. Kamkar, **A. Akbari Sehat**, M. Arjmand, M. Hoorfar. *Geometry-controlled synthesis of flower-like ZnO for VOC detection*. ACS, Spring 2021.

Leadership, Mentorship, and Community Involvement

- Lab Assistant, Center of Excellence in Electrochemistry, University of Tehran (2005–2008).
- Consultant to the Renewable Energy Organization of Iran (2011).
- Supervisor of scale-up electrosynthesis of glyoxylic acid (2013–2015).
- Wrote research proposals on the remediation of graphene oxide synthesis waste materials (UBCO, 2020).
- Wrote research proposals on anti-COVID graphene-decorated nanomaterials synthesis (UBCO, 2020).
- Mentored MSc theses on ZnO nanorods for gas sensing (UBC Okanagan, 2020–2020).
- Mentored MSc/PhD theses on graphene-based materials for heavy-metal detection, biosensor design, and solar cells (UBC Okanagan, 2019–2020).

References

Giovanni Zangari, PhD – Professor, Materials Science & Engineering, University of Virginia – gz3e@virginia.edu

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