

**Alaa Mohsen, Ph.D**

**Alaa Mohsen Abd El-Aziz, Ph.D**  
Research Scientist  
Faculty of Engineering, Ain Shams University

1 El-Sarayyat Street, Abbassia, Cairo

Cell: +201011488815

E-Mail: alaa.mohsen@eng.asu.edu.eg

### Professional Experience

#### Research Scientist

Faculty of Engineering, Ain Shams University

Department of Physics and Mathematics Engineering, Chemistry division

- Chemistry of construction and building materials

#### Postdoctoral Research Associate

March 2019–Present

- Utilizing nanomaterials in enhancing the properties of construction and building materials.
- Waste management in construction and building materials field
- Minimizing energy consumption and carbon dioxide emission to produce safe one-part alkali-activated materials
- Utilizing microwave radiation and autoclave in curing and production of geopolymeric materials.
- Studying the impact of structural stability of chemical admixtures on the NaOH alkali-activated slag properties.

### Education

Ain Shams University, Egypt

2016-2019

Ph.D. Faculty of Science, Department of Chemistry

- Effect of Some Novel Polymers on the Physico-Chemical Properties of Blended Cement Pastes

Ain Shams University, Egypt

2012-2016

M.Sc. Faculty of Science, Department of Chemistry

- Studying the effect of some chemical admixtures on the physico-chemical and rheological properties of oil well cement pastes

### Professional positions

- **Assistant Professor and Researcher**

2019 – present

Faculty of Engineering, Ain Shams University, Egypt

- **Researcher Assistant**

2016 – 2019

Faculty of Engineering, Ain Shams University, Egypt

- **Demonstrator and Researcher Assistant**

2011 – 2016

Faculty of Engineering, Ain Shams University, Egypt

## Teaching Experience

### Faculty of Engineering, Ain Shams University

#### Lecture Teaching

2019-Present

#### Tutorial and Lab Teaching

2011-2019

- Teaching undergraduate students lectures and experimental work in organic, inorganic, analytical and physical Chemistry for different years of student:
  - Engineering Chemistry.
  - Binding Materials
  - Electro Chemistry
  - Kinetics and Analytical Chemistry
  - Organic Chemistry
  - Polymer Chemistry
- Supervisor for students in their graduation and subject-based projects

## Publications

Google Scholar: <https://scholar.google.com/citations?user=nCpEiogAAAAJ&hl=en&oi=sra>

Citations: 265

h-index: 9

i10-index: 9

### Articles in per reviewed journals

17. M. Refaie, **A. Mohsen**, A. R. Nasr El-Sayed, and M. Kohail, "The Effect of Structural Stability of Chemical Admixtures on the NaOH Alkali-Activated Slag Properties," Journal of Materials in Civil Engineering, vol. 35, no. 1, p. 04022367, 2023/01/01 2023.
16. **A. Mohsen**, M. S. Amin, S. A. Waly, and M. Ramadan, "Rheological behavior, mechanical properties, fire resistance, and gamma ray attenuation capability for eco-friendly cementitious mixes incorporating thermally treated lead sludge," Construction and Building Materials, vol. 359, p. 129479, 2022/12/12/ 2022.
15. **A. Mohsen**, M. Kohail, A. A. Abadel, Y. R. Alharbi, M. L. Nehdi, and M. Ramadan, "Correlation between porous structure analysis, mechanical efficiency and gamma-ray attenuation power for hydrothermally treated slag-glass waste-based geopolymer," Case Studies in Construction Materials, vol. 17, p. e01505, 2022/12/01/ 2022.
14. M. Ramadan, M. Kohail, A. A. Abadel, Y. R. Alharbi, R. Tuladhar, and **A. Mohsen**, "De-aluminated metakaolin-cement composite modified with commercial titania as a new green building material for gamma-ray shielding applications," Case Studies in Construction Materials, vol. 17, p. e01344, 2022/12/01/ 2022.
13. A. A. El Gindy, E. A. Gomaa, H. I. Abdelkader, **A. Mohsen**, and A. O. Habib, "The effect of a sulfonated naphthalene-based polymer on redox reaction data, potassium ferrocyanide complexation, and the compressive strength of Portland cement paste," Journal of Molecular Liquids, vol. 356, p. 119000, 2022/06/15/ 2022.
12. M. S. El-Feky, **A. Mohsen**, A. Maher El-Tair, and M. Kohail, "Microstructural investigation for micro - nano-silica engineered magnesium oxychloride cement," Construction and Building Materials, vol. 342, p. 127976, 2022/08/01/ 2022.

11. **A. Mohsen**, M. Ramadan, M. Gharieb, A. Yahya, A. Soltan, and M. M. Hazem, "Rheological behaviour, mechanical performance, and anti-fungal activity of OPC-granite waste composite modified with zinc oxide dust," *Journal of Cleaner Production*, vol. 341, p. 130877, 2022/03/20/ 2022.
  10. M. Refaat, **A. Mohsen**, E.-S. A. R. Nasr, and M. Kohail, "Minimizing energy consumption to produce safe one-part alkali-activated materials," *Journal of Cleaner Production*, vol. 323, p. 129137, 2021/11/10/ 2021.
  9. **A. Mohsen**, M. S. El-Feky, A. M. El-Tair, and M. Kohail, "Effect of delayed microwaving on the strength progress of Green alkali activated cement composites," *Journal of Building Engineering*, vol. 43, p. 103135, 2021/11/01/ 2021.
  8. O. Mayhoub, **A. Mohsen**, R. Alharbi, A. Abadel, A. O. Habib, and M. Kohail, "Effect of curing regimes on chloride binding capacity of geopolymer," *Ain Shams Engineering Journal*, vol. 12, 05/01 2021.
  7. M. Ramadan, M. S. Amin, S. A. Waly, and **A. Mohsen**, "Effect of high gamma radiation dosage and elevated temperature on the mechanical performance of sustainable alkali-activated composite as a cleaner product," *Cement and Concrete Composites*, vol. 121, p. 104087, 2021/08/01/ 2021.
  6. Maher El-Tair, M. El-Feky, **A. Mohsen**, and M. Kohail, "Properties of Nano Engineered Concrete Subjected to Accelerated Corrosion," *Nanotechnologies in Construction*, vol. 13, no. 5, 2021.
  5. O. Habib, I. Aiad, F. I. El-Hosiny, and **A. Mohsen**, "Studying the impact of admixtures chemical structure on the rheological properties of silica-fume blended cement pastes using various rheological models," *Ain Shams Engineering Journal*, vol. 12, no. 2, pp. 1583-1594, 2021/06/01/ 2021.
  4. **A. Mohsen**, H. A. Abdel-Gawwad, and M. Ramadan, "Performance, radiation shielding, and anti-fungal activity of alkali-activated slag individually modified with zinc oxide and zinc ferrite nano-particles," *Construction and Building Materials*, vol. 257, p. 119584, 2020/10/10/ 2020.
  3. **A. Mohsen**, I. Aiad, F. I. El-Hossiny, and A. O. Habib, "Evaluating the Mechanical Properties of Admixed Blended Cement Pastes and Estimating its Kinetics of Hydration by Different Techniques," *Egyptian Journal of Petroleum*, vol. 29, no. 2, pp. 171-186, 2020/06/01/ 2020.
  2. O. Habib, I. Aiad, F. I. El-Hosiny, and **A. M. Abd El-Aziz**, "Development of the fire resistance and mechanical characteristics of silica fume-blended cement pastes using some chemical admixtures," *Construction and Building Materials*, vol. 181, pp. 163-174, 2018/08/30/ 2018.
  1. A. O. Habib, I. Aiad, T. A. Youssef, and **A. M. Abd El-Aziz**, "Effect of some chemical admixtures on the physico-chemical and rheological properties of oil well cement pastes," *Construction and Building Materials*, vol. 120, pp. 80-88, 2016/09/01/ 2016.
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### **Master of Science and Doctor of Philosophy Supervision**

- Master of Science in Civil Engineering- structural Engineering (2019)  
“Effect of Chemical Admixtures on the Mechanical and Rheological properties of Geopolymer”.
- Master of Science in Civil Engineering- structural Engineering (2020)  
“Production of one-part geopolymer through thermo-chemical treatment process”.
- Master of Science in Civil Engineering- structural Engineering (2020)  
“Chloride Corrosion in Reinforced Geopolymer Concrete”.
- Master of Science in Civil Engineering- structural Engineering (2021)  
“Optimization the physico-mechanical properties, durability and radiation shielding of heavyweight concrete”.
- Master of Science in Civil Engineering- structural Engineering (2021)  
“Production of Geopolymer by enhancing the chemical composition of locally available kaolin”.
- Master of Science in inorganic and physical Chemistry (2021)  
“Production of Eco-Friendly Building Materials with Enhanced Properties Using Some Solid Wastes”.
- Doctor of Philosophy in Civil Engineering- structural Engineering (2021)  
“Enhance the Properties of Local Metakaolin-Based Geopolymer”.

### **Projects and proposals**

- Participating in Science and Technology Development Fund (STDF) project. Project title: “Sustainable Geopolymer-based Building Materials Prepared from Industrial Wastes Enhanced by Nanoparticles and Cross-linked Superplasticizer”, project ID “46044”, STDF, 2022.
- Participating in Science and Technology Development Fund (STDF) project. Project title: “One-Part Metakaolin by Resistance and Microwave Thermal Treatment”, project ID “45911”, STDF, 2022.
- Participating in Science and Technology Development Fund (STDF) project. Project title: “Recycling of industrial rock-tailings as value-added circular economy and environmental protection”, project ID “41553”, STDF, 2021.
- Participating in German Exchange Research Fund (GERF) project. Project title: “Modeling nano-metric raw materials and industrial wastes for the production of insulating aggregates”, project ID “33631”, GERF, 2018.

### **Conferences and workshops**

- Organizer in the first international conference and workshop on (EAI International Conference on Innovations and Interdisciplinary Solution for Underserved Areas) Faculty of Engineering, Ain Shams University, Cairo – Egypt, 2019.
  - Poster presenter in the 7<sup>th</sup> annual international ain shams university conference, Ain Shams University, Cairo – Egypt, 2018.
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## **Alaa Mohsen, Ph.D**

- Organizer in the 6<sup>th</sup> Ain Shams University workshop on Oilfield Chemistry, Faculty of Engineering, Ain Shams University, Cairo – Egypt, 2017.
- Speaker in concrete Asia, Bangkok-Thailand, 2016.

### **Activities**

- Academic advisor for specialized programs students (2018-2021)
- Academic coordinator for international programs students “Materials Engineering Program” (2021-Present)

### **Personal and Communication Skills**

- Enthusiastic and Energetic personality.
- Excellent verbal and listening communication skills.
- Ability to work within a team player and build relationships.
- High sense of urgency to enable and drive change.
- Working under high pressure.

### **Computer Skills**

- Excellent in using Windows 10, Microsoft office 2019 and Origin
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