

Ehab Mohamed Abdel Rahman

Ph.D. Nuclear & Radiochemist | Nuclear Safety, Radiation Protection, Safeguards & Radioanalytical Sciences

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Professional Summary

Ph.D. Nuclear and Radiochemist with more than 10 years of professional experience spanning radiochemistry, radioanalytical science, environmental monitoring, nuclear safety, radiation protection, nuclear safeguards, and radioactive waste management. Experienced in both research and regulatory environments, with expertise in radiochemical separation, alpha and gamma spectrometry, environmental radioanalysis, and nuclear safety applications. Currently engaged in technical and scientific activities at the Egyptian Atomic Energy Authority, including radiation protection at the ETRR-2 research reactor and technical support to the Authority Chairman. Internationally experienced through participation in IAEA research and capacity-building programmes, including selection as a Chief Scientific Investigator for IAEA Coordinated Research Project J72007. Author/co-author of peer-reviewed publications in radiochemistry, nuclear analytical science, environmental radioactivity, and radioactive-materials research.

Education:

Ain Shams University, Cairo, Egypt.

- **Ph.D. Degree** of Science in Chemistry (Nuclear and Radiochemistry) at the Department of Chemistry, Faculty of Science, University of Ain Shams. 2022

Alexandria University, Alexandria, Egypt.

- **M.Sc. Degree** of Inorganic Chemistry from the Department of Inorganic Chemistry, Faculty of Science, University of Alexandria. 2015

Al-Azhar University, Cairo, Egypt.

- **B.Sc. Degree** of Special Chemistry, Department of Chemistry, Faculty of Science, Al-Azhar University, Cairo. 2008
 - Major: chemistry; "**special chemistry**".
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Summary of Qualifications

- **10+ years of professional experience** in radiochemistry, radioanalytical science, environmental monitoring, nuclear safety, radiation protection, nuclear safeguards, and radioactive waste management.
- **Strong research and analytical expertise** in radiochemical separation, alpha and gamma spectrometry, environmental radioanalysis, and the characterization of radionuclides in complex environmental matrices.

- **Nuclear safety and radiation protection experience**, including research-reactor radiation protection, environmental radiation monitoring, radioactive waste management, emergency preparedness, and nuclear fuel-cycle safety.
- **International scientific and technical engagement**, including participation in IAEA research and capacity-building programmes, nuclear safeguards training, and European Commission/INSC professional development programmes.
- **Scientific leadership and institutional coordination**, including service as Chief Scientific Investigator in an IAEA Coordinated Research Project and technical support to the Chairman of the Egyptian Atomic Energy Authority.
- **Established research record**, with peer-reviewed publications in radiochemistry, nuclear analytical science, environmental radioactivity, radioactive waste-related research, and materials/adsorption studies.

Honours and Competitive Selections

International Atomic Energy Agency (IAEA)

Chief Scientific Investigator (CSI) — Coordinated Research Project (CRP) J72007, *“Climate Change Challenges to Nuclear Installations”*

Selected: February 2024

- Selected as Chief Scientific Investigator for a research team participating in the IAEA Coordinated Research Project J72007.
- Leading research activities focused on assessing the resilience of nuclear installations to climate change and associated environmental hazards.
- Contributing to international scientific collaboration and the development of research outputs supporting nuclear safety and climate-change resilience.

European Commission / Instrument contributing to Stability and Peace (INSC)

Decomplex Executive Training Programme — University Master Level Diploma in Decommissioning Management and Leadership for Safety

Université Côte d’Azur, Nice, France | 2026–2027

- Selected through an international competitive process for the Decomplex Executive Training Programme.
- Awarded a full European Commission (INSC) scholarship covering the programme-related costs.
- Programme focused on decommissioning management, leadership for safety, radioactive waste management, project management, and international best practices.

Training and Certifications

- Comprehensive Two-Week Blended Course on Nuclear Safeguards Part 2 Hands-on Training. Dessel/Mol, Belgium. 2-6 June 2025
- ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories training that is held in the central laboratory for environmental radiation measurements, intercomparison and training (CLERMIT) 1 July to 3 July 2024.
- INSC T&T Project MC3.01/20 Training in "MANAGEMENT OF SPENT FUEL AND RADIOACTIVE WASTE" held on 3-7 June 2024 in BUDAPEST, HUNGARY.
- Condensed One-Week Online Course on Nuclear Safeguards Basics// 22nd ESARDA Course on Nuclear Safeguards and Non-Proliferation by JRC–Joint Research Centre of the European Commission and the ESARDA Training and Knowledge Management working group. 15- 19 April 2024
- Using Environmental Isotopes to Identify Climate Changes, their Hydrological Impact, and means of Dealing with them. Organized by the Arab Atomic Energy Authority, Cairo, Egypt. 25-29 February 2024
- International Winter School on Radiochemistry 2023. Where organized by Lomonosov Moscow State University and the State Atomic Energy Corporation ROSATOM, Moscow, Russia. 11-21 December 2023
 - Topics covered:
 - Radioactive Waste Management
 - Types of Radioactive Waste
 - Classification of Radioactive Waste
 - Characterization of Radioactive Waste
 - Transportation and Storage of Radioactive Waste
 - Environmental Aspects
- EVT2204728 "2023 Training Workshop of IAEA's ALMERA Network on Advanced Topics in Radiochemistry Techniques: Lead-210 and Polonium-210", 9 to 12 October 2023
- Development of the Harmonized Operational Protocols for the Collection, Identification, and Counting of Microplastics in the Selected Matrices. RAF1010 (NUTEC Africa), under the International Atomic Energy Agency (IAEA). 6-10 August 2023
- INSC T&T Project MC3.01/20 Training in the field of EMERGENCY PREPAREDNESS AND RESPONSE" INSPECTING OF EMERGENCY PREPAREDNESS ", Location" Amman, Jordan". 22 – 26 May 2023
- ALMERA Training Workshop (virtual) on Advanced Topics in Radiochemistry Techniques: Quality Assurance (QA)/Quality Control (QC) and Integrated Quality Management for Environmental Radioanalytical Laboratories with ISO 17025 – EVT2104246. 27June-1july2022
- Trainee, Genie-2000& Apex-Alpha Software Training Course by Canberra Packard. May 2022

- Trainee, Use of radioactive sources and radioactive materials and protection from the dangers of ionizing radiation. 9August–10Sept 2019
 - 4-Day Dose-Response Assessment Course at Bibliotheca Alexandrina. 17–April 2017
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Professional Experience

I. Egyptian Atomic Energy Authority, Nuclear Fuel Cycle Safety Department –Nov 2021–present

1. Radiation Protection Officer (RPO) at Egypt Research Reactor-2 (ETRR-2) –from Jun 2026 to present

- Manage operational radiation protection and compliance activities for the 22 MW ETRR-2 open-pool research reactor.
- Monitor occupational radiation exposure and implement ALARA principles to maintain radiation doses as low as reasonably achievable.
- Oversee radiological surveys, area monitoring, and contamination-control activities across reactor halls and isotope-production facilities.
- Conduct radiation-safety training for technical personnel and contribute to the safe management and disposal of radioactive waste.

2. Member of the Technical Office for the Authority Chairman from April 2025. – Present

- Provide technical analysis and evidence-based advice to support senior-level decision-making on nuclear science, safety, and institutional initiatives.
- Review, analyze, and synthesize complex technical reports, policy documents, and regulatory frameworks related to EAEA activities.
- Facilitate communication between senior management and specialized technical departments and monitor the progress of assigned projects and activities.

3. Radiochemical Separation Specialist, Nov 2021 – Present

- Conduct radiochemical analysis and separation of radionuclides in environmental and other complex sample matrices using established radiochemical and radioanalytical methodologies.
- Plan and implement sampling and laboratory preparation procedures for soil, sediment, surface and groundwater, air filters, and biological samples while maintaining sample integrity and contamination control.
- Apply radiochemical separation techniques including solvent extraction, precipitation, and ion-exchange/extraction chromatography for targeted radionuclide analysis.
- Perform qualitative and quantitative measurements using alpha and high-resolution gamma spectrometry for environmental radioactivity assessment and radionuclide characterization.
- Prepare technical assessments related to radioactive waste streams and laboratory activities in accordance with applicable IAEA safety guidance and national regulatory requirements.

II. Egyptian Nuclear and Radiological Regulatory Authority – Cairo, Egypt. May 2016 – Oct 2021

- Conducted field sampling of environmental matrices, including soil, sediment, surface water, groundwater, and other samples for radiological assessment.
- Performed destructive radiochemical separation of uranium (U), polonium (Po), and radium (Ra) from environmental samples using precipitation, solvent extraction, ion-exchange, and extraction chromatography.
- Performed subsequent alpha- and gamma-spectrometric measurements for radionuclide identification and quantification.
- Evaluated nuclear safety documentation and contributed to regulatory oversight of nuclear and radiological activities.
- Participated in regulatory inspections and technical assessments of nuclear and radiological facilities.
- Contributed to emergency preparedness and response activities and assessment of emergency preparedness arrangements.
- Conducted technical studies related to environmental impact assessment of nuclear facilities.

III. Kafr El Zayat Pesticides and Chemicals – Gharbia, Egypt. May 2012–May 2016

- Managed production operations while ensuring compliance with chemical safety and operational requirements.
- Implemented quality-control measures for chemical formulations and production processes.

Technical Expertise

Radiochemistry & Radioanalytical Science

- Radiochemical separation and purification of radionuclides using precipitation, solvent extraction, ion-exchange, and extraction chromatography techniques.
- Alpha and high-resolution gamma spectrometry for qualitative and quantitative radionuclide analysis.
- Radioanalytical methods for uranium, polonium, radium, and other radionuclides in environmental and complex sample matrices.
- Preparation, processing, and measurement of environmental samples for radioactivity assessment.

Environmental Radioactivity & Monitoring

- Environmental radiation monitoring and assessment of natural and anthropogenic radionuclides.
- Field sampling and laboratory analysis of soil, sediment, water, air-filter, and biological samples.
- Assessment and characterization of radioactive contamination and NORM-related materials.

Nuclear Safety, Radiation Protection & Emergency Preparedness

- Radiation protection and implementation of ALARA principles in research-reactor and laboratory environments.

- Nuclear safety assessment and regulatory compliance.
- Emergency preparedness and response for nuclear and radiological facilities.
- Radiation monitoring, contamination control, and occupational exposure assessment.

Radioactive Waste & Nuclear Fuel-Cycle Safety

- Radioactive waste characterization, classification, treatment, management, and disposal.
- Nuclear fuel-cycle safety principles and regulatory requirements.
- Safety assessment of radioactive waste streams and related laboratory activities.

Nuclear Safeguards

- Knowledge of nuclear safeguards principles, verification approaches, and international safeguards practices.
- Training and professional development through IAEA and ESARDA/JRC nuclear safeguards programmes.

Quality Assurance & Laboratory Management

- ISO/IEC 17025 requirements for testing and calibration laboratories.
- Quality assurance and quality-control procedures for environmental radioanalytical laboratories.
- Laboratory measurement quality, calibration, and analytical quality management.

Instrumentation & Software

- HPGe gamma-ray detectors and alpha spectrometry systems.
- Canberra/Genie-2000 and Apex-Alpha software.
- Microsoft Office, Microsoft Project, Access, Outlook, and SQL/database tools.

Computer and Language Skills

Software & Digital Tools

- Microsoft Office Suite: Word, Excel, PowerPoint, Access, Outlook
- Microsoft Project
- SQL and database management
- Canberra Genie-2000 and Apex-Alpha software for radiometric data analysis

Languages

- Arabic (Native)
- English (Fluent)
- German (Basic)

Research and Publications

- **Ehab M. Abdel Rahman**, Eman A. Youssuf, Ahmed M. Shabasy, W.I. Zidan, Hanan M. Diab, Challenges of uranium determination in biological samples as a nuclear forensics tool, Applied Radiation and Isotopes, Volume 236, 2026, 112757, ISSN 0969-8043, <https://doi.org/10.1016/j.apradiso.2026.112757>
- Sahar Ali Okasha; Abeer A. Faheim; Aida A. Salma; **Ehab M. Abdel Rahman**; Mohamed El Feky; Neveen Abed; Mahmoud R Khattab. "Radiochemical Determination of Uranium Isotopic Ratios

in Abu Rushied Pegmatites, Southeastern Desert of Egypt", Egyptian Journal of Chemistry, 2026.
<https://doi.org/10.21608/ejchem.2026.481325.13235>

- **M. Abdel Rahman, E.**, Kamel, A.H., El-Subruiti, G.M. et al. Removal of thorium-232 and potassium-40 radionuclides from oil-well water using fly ash. J Radioanal Nucl Chem (2026).
<https://doi.org/10.1007/s10967-026-10883-3>
- Amani Aridi, Sajida Rmeid, Malak Yasser El Sayed, Khulud Habanjar, Gehan M. El-Subruiti, **Ehab M. Abdel Rahman**, Waleed F. Khalil, Ramadan Awad, Nourhan Mohamed Gaber. Tailoring Bi, Sn co-doped CoZnFe₂O₄ for Ni (II) and Cs (I) removal: Insights into characterization, adsorption activity, kinetics, thermodynamics, and non-linear isotherms. Materials Science and Engineering: B, Volume 323, Part B, 2026, 118820, ISSN 0921-5107,
<https://doi.org/10.1016/j.mseb.2025.118820>
- **Abdel Rahman, Ehab M.**, Gehan M. El-Subruiti, Ezzat R. Atta, and Amira HE Moustafa. Removal of Copper and Nickel Ions from Aqueous Solution by Adsorption on Nanobentonite: Equilibrium, Kinetics, and Thermodynamics. ACS Omega (2025).
<https://doi.org/10.1021/acsomega.4c08067>
- **Ehab M. Abdel Rahman**; Ahmed Mohammed Elshabasy; Eman Youssuf; Ahmed R. Agha. Assessment of U-separation Using U-TEVA Column, Case Study: Reuse of U-TEVA Column., Arab Journal of Nuclear Sciences and Applications, 58, 3, 2025, 17-27.
<https://doi.org/10.21608/ajnsa.2025.367577.1879>
- Rmeid, Sajida, Amani Aridi, Khulud Habanjar, **Ehab M. Abdel Rahman**, Waleed F. Khalil, Gehan M. El-Subruiti, and Ramadan Awad. Removal of Radioactive Co (II) and Sr (II) using (Co_{0.5}Zn_{0.5}) Fe₂O₄ Nanoparticles Co-doped with Barium and Antimony. Ceramics International (2024).
<https://doi.org/10.1016/j.ceramint.2024.11.433>
- **Abdel Rahman, E. M.**, Hassan, S. S. M., Kamel, A. H., El-Subruiti, G. M., & Diab, H. M. (2021). Removal of Uranium-238 Ions from Contaminated Ground Water Containing NORM by Adsorption on Fly Ash Carbon: Equilibrium, Kinetic and Thermodynamic Studies. Arab Journal of Nuclear Sciences and Applications (Online), 54(2), 92-103.
<https://doi.org/10.21608/ajnsa.2021.42885.1401>
- **Rahman, EM Abdel**, G. M. El-Subruiti, A. H. Kamel, H. M. Diab, and S. S. M. Hassan. Copper and Lead Ions Removal from Aqueous Solutions Case Study: Fly Ash Carbon as Low-Cost Effective Sorbent. Egyptian Journal of Chemistry 65, no. 9 (2022): 389-404.
<https://doi.org/10.21608/ejchem.2022.100256.4657>
- Hassan, Saad SM, **Ehab M. Abdel Rahman**, Gehan M. El-Subruiti, Ayman H. Kamel, and Hanan M. Diab. Removal of Uranium-238, Thorium-232, and Potassium-40 from Wastewater via Adsorption on Multiwalled Carbon Nanotubes. ACS omega 7, no. 14 (2022): 12342-12353.
<https://doi.org/10.1021/acsomega.2c00819>

References

Available upon request.