

# Abdelrahman M. Ishmael

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## Education

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**Faculty of Science, Benha University-Obour Campus**, Cairo, Egypt.

Sep. 2021 - Present

**BSc.** of Nanomaterials Science and its Applications.

**GPA:** 3.5 out of 4 [Ranked 1<sup>st</sup> among 30 students].

**Relevant Coursework:** Nanomaterials synthesis approaches, Materials characterization (Spectroscopic & Thermal analysis methods), Modern Optics, Optical spectroscopy, Thermodynamics and Kinetics of Nanomaterials, Introduction to Solid-State Physics & Chemistry, Properties of Ceramics and Glasses, Patents in Nanomaterials, Analysis and other research skills.

## Work Experience

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**Nanofab Company**, Giza, Egypt.

Feb. 2022- Present

Undergraduate research fellow under the supervision of Dr. Ahmed Sadek, Director of Nanofab company.

- Dr. Ahmed facilitates demands and as a result, We synthesized the nanocomposite, (MWCNTs)<sub>x</sub>/MgFe<sub>2</sub>O<sub>4</sub> to be used as supercapacitor electrode material for energy storage that revealed improvement in the dielectric properties with increasing MWCNTs concentrations.
- Some tools like microwave oven, mortar, stirrer and ultra-bath sonicator are used for preparation, and some others are used for characterization like XRD technique, FTIR spectroscopy, SEM and Wayne-Kerr LCR 6500B meter.
- It is to be submitted to journal of Superconductivity and Novel Magnetism.

**Central Metallurgical Research and Development Institute (CMRDI)**, Helwan, Egypt.

Jan. 2022- Present

Lab Intern – Nanostructured Materials and Nanotechnology Laboratory.

Supervisor: Prof. Dr. Osama A. Foad, Director of Nanotechnology Laboratory.

Undergraduate research fellow under the supervision of Dr. Osama A. Foad, Director of Nanotechnology Laboratory.

- Our aim worked on getting a nanobiosensor to be used for Glucose detection on a wide range of response.
- The nanocomposite material modifying the working electrode was of (Mn<sub>2</sub>O<sub>3</sub>/C<sub>3</sub>N<sub>4</sub>) which revealed improvement in efficiency.
- XRD, Raman Spectroscopy, FESEM, EDX elemental mapping, BET-BJH and XPS analysis were used.

## Research Internships

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**HZB International Summer Student Programme 2023**

3 July – 25 August 2023

Electrochemical Energy Storage (CE-AEES) - Helmholtz-Zentrum Berlin

Supervisor: Dr. Eneli Monerjan

E-mail: [eneli.monerjan@helmholtz-berlin.de](mailto:eneli.monerjan@helmholtz-berlin.de)

- Title of the Project: **Post-mortem three-dimensional data analyses of Li/S**

**EGYPTIAN ATOMIC ENERGY AUTHORITY**, Cairo, Egypt.

Mar. 2022

Trainee – Thermal Plasma Processes and nanomaterials preparation.

- Studied thermal plasma processes and nanomaterials preparation and its role in stabilizing nanoparticles on surfaces.
- Prepared some Nanomaterials using Co-precipitation method and tried to find a biodegradable material to be used as a drug carrier for cancer treatment.

**Electronics Research Institute**, Cairo, Egypt.

12-15 Feb. 2022

Trainee – Various devices used in Materials characterization, Former Director of Electronics Research Institute.

Supervisor: Prof. Dr. Soher Moharam.

- Prepared and characterized Zinc oxide nanoparticles.
- Studied some devices of characterization and preparation such as Glove Box Holder, XRD, SEM, TEM, Microwave Synthesizer, CVD, and some other devices used in electronic applications.

**Nanofab Company**, Cairo, Egypt.

17, 18 Jan. 2022

Trainee – Nanomaterials preparation lab.

Supervisor: Dr. Ahmed Sadek, Director of nanofab.

- Prepared Chitosan nanoparticles and Magnetite nanoparticles by Ionotropic gelation and chemical reduction method.

**Faculty of Engineering Shoubra**, Cairo, Egypt.

24, 25 Oct. 2021

Trainee – Laser Physics & Nanotechnology Unit.

Supervisor: Prof. Dr. Sohir Negm

- Prepared gold and silver nanoparticles by laser ablation and applied them in water treatment.
- Constructed a quantum dot solar cell.

**Central Metallurgical Research and Development Institute (CMRDI)**, Helwan, Egypt.

10 Oct. 2021

Lab Intern – Nanostructured Materials and Nanotechnology Laboratory.

Supervisor: Prof. Dr. Osama A. Foad, Director of Nanotechnology Laboratory.

- Preparation of  $\text{TiO}_2$  and making the dye-synthesized solar cell.
- Prepared Chitosan nanoparticles and Magnetite nanoparticles by Ionotropic gelation and chemical reduction method, respectively.

## **Leadership and Activities**

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**U.R.I-Undergraduate Research Initiative**, Benha University, Egypt

May. 2021 - Present

Former Chief of the research initiative at Benha University.

- U.R.I-Undergraduate Research Initiative is originally in Tanta University, and I have applied the Initiative in our college with my colleagues under the supervision of the principal chief.
- As the leader of the initiative, I am helping my colleagues in research skills, college subjects and improving our English as well. We are doing like journal clubs in our specialization.

**U.R.I-Undergraduate Research Initiative**, Tanta University, Egypt

May. 2021 - Present

Scientific Researcher at Nanomaterials committee.

Member – Media committee.

Head of Planning & following up committee.

- Sharing other researchers with the same interests in writing a review on Mesoporous Au nanoparticles applications.
- Wrote articles in some scientific fields such as; energy, water treatment, Artificial intelligence, etc.
- Editing and analyzing Photos, Marketing, Replying to the comments, and protecting property rights.

**Science Land Team**, Ain Shams University, Egypt

Dec. 2020 - Present

Scientific Member

- Older researchers help us in various soft and hard skills and we, as generations, help fresh joining students.
- Projects serving sustainable development goals are carried out.

**Resala Charity Organization**, Egypt

Jul. 2020 – Present

Volunteer

- Helping poor people without shelter. I've Contributed to the delivery of drinking water lines and some supplies.
- In the recent Corona pandemic, I participated in awareness-raising campaigns against the Coronavirus in the village, as well as in medical campaigns to receive the Coronavirus vaccine in over twenty campaigns this year.

## **Attended Conferences and Seminars**

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- **7<sup>th</sup> Edition of WATREX EXPO 2023** 15-17 May. 2023  
The biggest exhibition and conference specialized in water industry, EIEC, Egypt.
- **2<sup>nd</sup> Annaul Conference of Post Graduate Studies for Applied Science** 11 May 2023  
Faculty of Science, Benha University, Egypt.
- **New Trends in Physics and Nanotechnology with Related Applications – One-day Seminar** 9 May 2023  
NTRC & National Committee of Physics - British University in Egypt.
- **International Science and Engineering Innovations Competition, ISEIC'2023.** 1, 2 May 2023  
ISEIC | Air Defense College | Egypt.

- **Manufacturing and Advancement Development in Egypt (MADE) program** 1 Mar. 2023-Present  
Support program for aspiring entrepreneurs in the manufacturing sector in Egypt. Powered by enpact & GIZ.
- **Nanotechnology Exhibitions @ Purdue University** Fri, Feb 24, 2023
- **UNESCO Bootcamp for Early Career Nanotechnology Entrepreneurs in Africa** 29 Jan. - 2 Feb. 2023  
British University in Egypt, UNESCO's IYBSSD 2023
- **Egypt Scholars Basic Lab 10** 10 Jan. - May 2023  
Fundamental principles of scientific research, Egypt Scholars, Egypt.
- **2<sup>nd</sup> Practical AGYA Training: Improving Academic & Professional Skills** 26-29 Sep. 2022  
Arab-German Young Academy of Sciences and Humanities (AGYA) & Nile University.
- **Foreseeing the Future of Nanotechnology: Vision and Application...Obstacles and Solutions.** 24-26 Sep. 2022  
Faculty of Nanotechnology for Postgraduate Studies, Cairo University.
- **Innovation Camp for Scientific Entrepreneurs** 12-22 Sep. 2022  
Innovators Support Fund-ISF, Egypt.
- **Masterclass on Raman spectroscopy of graphene** 13 Sep. 2022  
Graphene Council, and the European Project ISO on grapheme standardization.
- **IX CINE-CMSC Workshop: Computational Materials Science and Chemistry** 29Aug. -02 Sep. 2022  
Center for Innovation on New Energies
- **2<sup>nd</sup> Seminar on Nanomaterials and Energy Storage (NanoES2022)** 22-23, Aug. 2022  
SunWay University, Malaysia
- **AI in correlative AFM-in-SEM microscopy** 13 Jul. 2022  
NenoVision company, Purkyňova
- **Aspire Leaders Program** 25 May. – 30 Jun. 2022  
Aspire Institute, Harvard University
- **Machine Learning for Materials Research Bootcamp 2021** Jul. 26-30, 2021  
University of Maryland
- **7th NANO Boston Conference, online (NWC Boston-2021)** Oct. 18-20, 2021  
United Scientific Group
- **Nano Materials & Third Generation solar cell,** 27 Sep. 2021  
Benha University, Egypt
- **3rd HITRI plus Seminar - Prof. Thomas Haberer, HIT.** 13<sup>th</sup> Oct. 2021  
Heidelberg Ion Beam Therapy Center at the Heidelberg University Hospital, Germany.
- **Nanotechnology in Disease Management Confirmation** Oct. 2021  
Ajman University
- **Heavy Ion Therapy Masterclass School network** Jun. 2021–Jul. 2021  
HITM School, CERN
- **AGYA Online Summer School 2021** Oct. 2021  
Arab-German Young Academy of Sciences and Humanities (AGYA)  
Berlin-Brandenburg Academy of Sciences and Humanities (BBAW)

## **Skills and Interests**

**Technical:** Microsoft Office, Adobe Photoshop, Adobe Premiere. **Programming Languages:** C++

### **Language:**

- **Mother tongue:** Arabic
- **Other Languages:** English (Very Good, C1), Deutsch (A2).

### **Laboratory:**

- **Preparation tools:** Hotplate Magnetic stirrer, Ultrasonic machine, Electrospinner, Heratherm drying oven, Centrifuge, and Analytical electronic scale.
- **Characterization tools:** SEM, TEM, Particle Size Analyzer, Spectrophotometer, Photoacoustic Laser, AI-driven tool for automatic correlation of AFM and SEM images.

**Interests:** Reading scientific and historical books, playing sports.

## **Courses**

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Writing in the Sciences, Nanotechnology: A Maker's Course, Time management, Learning how to learn, Nanotechnology and Nanosensors, Part 1&2, Introduction to Solid-State Chemistry, Exercising Leadership: Foundational Principles, Rhetoric: The Art of Persuasive Writing and Public Speaking.

## **References**

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1. **Prof. Mohamed Mokhtar Mohamed**

- Dean of basic and applied science
- Egypt-Japan University of science and technology (**E-JUST**)
- E-mail; [Mohamed.mokhtar@ejust.edu.eg](mailto:Mohamed.mokhtar@ejust.edu.eg)

2. **Prof. Dr. Safinaz Abdelmotaleb**

- Professor of Physical Chemistry, Department of Chemistry, Faculty of Science, Benha University, Cairo, Egypt.
- Main Coordinator of Nanomaterials Science Program, Faculty of Science, Benha University - Obour Campus, Cairo, Egypt.

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