

CURRICULUM VITAE

Personal Data:

Name : Mahmoud Abdel Azim Bakr Arby
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Academic Qualifications

- ❖ **Ph.D. in Energy Science (Sep. 2011).**
 - **Thesis Title:** Studies on the Reduction of Back Bombardment Effect in Thermionic RF Guns Using Different Cathode Materials.
 - **Place of Graduation:** Graduate School of Energy Science, Kyoto University, Kyoto, Japan.
- ❖ **Educational program on Zero CO₂ Emission of Kyoto University Global COE Program**
 - **Title:** The Energy Science in the Age of Global warming
 - **Place of Graduation:** Graduate School of Energy Science, Kyoto Un.Kyoto, Japan.
- ❖ **M. Sc. in Physics “Theoretical Physics” (April 2007) master’s degree in physics**
 - **Thesis Title:** Theoretical Studies on the Thermoluminescence Phenomenon.
 - **Place of Graduation:** Faculty of Science, Assiut University, Assiut, Egypt.
- ❖ **Master course (Oct. 2002) Diploma in Physics**
 - **Graduation Grade: Very good**
 - **Place of Graduation:** Faculty of Science, Assiut University, Assiut, Egypt.
- ❖ **B. Sc. in Physics, General Physics (June. 1999) bachelor in physics**
 - **Grade:** Very Good (Accumulative 81.7%)
 - **Place of Graduation:** Faculty of Science, Assiut University, Assiut, Egypt.

Employment History:

- ✓ **Associate Professor** at Physics Department, Assiut University, Egypt (9.2020~ present).
- ✓ **Assistant Professor** at Physics Department, Assiut University, Egypt (5.2012~ 8.2020).
- ✓ **Director Assistance:** Egyptian E-Learning Un. Assiut, Egypt (04.2013~07.2014)
- ✓ **Assistant Lecturer** at Physics Department, Assiut University, Egypt (05.2007~9.2008).
- ✓ **Demonstrator** at Physics Department, Assiut University, Egypt (12.2000~ 04. 2007).

Fellowships & Grants:

- ✓ **Distinguished visiting associate professor** at the Institute of Advanced Energy, Kyoto University, Japan (01.2020~Now), **Project title:** Studies on the effect of the deuterium-enriched anode on the neutron yield from IEC system for medical applications.
- ✓ **Researcher** at the Institute of Advanced Energy, Kyoto University, Japan (02.2020~12.2020), **Project title:** Development of a simultaneous (neutrons and X-ray) radiography technique using a compact neutron source based on IEC fusion device.
- ✓ **Program Assistant Professor** at the Institute of Advanced Energy Kyoto University, Japan (09.2019~01.2020), **Project title:** Development of a simultaneous (neutrons and X-ray) radiography technique using a compact neutron source based on IEC fusion device.
- ✓ **Researcher** at the Institute of Advanced Energy Kyoto University, Japan (4.2019~8.2019), **Project title:** Development of a simultaneous (Neutrons and X-ray) radiography technique using a compact neutron source based on IEC fusion device.
- ✓ **Project Assistant professor** at the Institute of Advanced Energy at Kyoto University, Japan (12.2018~4.2019), **Project title:** Assessment of ^{10}B activity for BNCT medical application using IEC neutron generator and TMFD detector.
- ✓ **Postdoctoral Fellowship**, at the Institute of Advanced Energy Kyoto University, Japan (4.2018~11.2018), **Project title:** Assessment of ^{10}B activity for BNCT medical application using IEC neutron generator and TMFD detector.
- ✓ **Postdoctoral Fellowship** at Kyoto University, Japan (4.2016~3.2018), **Project title:** Development of an active interrogation system of SNMs using TMFD & compact neutron source based on IEC fusion.
- ✓ **Postdoctoral Fellowship** at Graduate School of Energy Science, Kyoto University, Japan (9.2015~3.2016), **Project title:** Renewable energy systems and policy in Japan.
- ✓ **Postdoctoral Fellowship** at DESY, Zeuthen, Germany (9.2014~ 7.2015), **Project title:** Optimizing the photoemission electron beam for European X-FEL, RF gun using different laser pulse shapes.
- ✓ **Postdoctoral Fellowship** at DESY, Zeuthen, Germany (6.2012~10.2012), **Project title:** Study & conditioning of the photocathode RF gun as a preparation step for European X-FEL.
- ✓ **Postdoctoral Fellowship** at Graduate School of Energy Science, Kyoto University, Japan (10.2011~4.2012), **Project title:** Numerical simulation for new photocathode RF gun system at Kyoto University.
- ✓ **Ph. D (MEXT)**, Kyoto University, Japan (10.2008~9.2011), **Project title:** Backbombardment effect on thermionic RF guns, Linear accelerators, FEL applications, Development of RF guns.

Awards:

1. **Presentation award:** 1st International Symposium of GCOE, Kyoto, Japan, Feb. 2010.
2. **Poster award:** 2nd International Symposium of GCOE, Kyoto, Japan Aug. 2010.
3. **Poster award:** 3rd International Symposium of GCOE, Kyoto, Japan, Jan. 2011.

Supervision of Scientific Degrees:

- Master's degree, **Topic:** nuclear and radiation physics, **Place:** Assiut University, Egypt, Awarded degree, **title:** Using Neutron Activation Analysis and some other techniques to investigate some petroleum sites from Eastern Desert Egypt.
- Master's degree, **Topic:** nuclear and radiation physics, **Place:** Assiut University, Egypt, still running, **title:** Neutron build-up and its applications.
- Bachelor's degrees, **Topic:** Neutron Generations and Applications, **Place:** Institute of Advanced Energy, Kyoto University, Japan, **Title: 2 degrees in Japanese**
- Master's degrees, **Topic:** Neutron Generations and Applications, **Place:** Institute of Advanced Energy, Kyoto University, Japan, **Title: 3 degrees in Japanese**

Training and courses in the educational field

Courses and training program during the last 20 years, each program for >20 hours:

1. Effective Teaching
2. Recent trends in Teaching
3. Code of Ethics
4. Communication Skills
5. Effective Presentation
6. Quality assurance in the Teaching
7. Credit Hours System
8. International Scientific Publishing
9. Student Evaluation
10. Legal & Financial Aspects in University Environment
11. Exams and Evaluation System
12. Principles of Statistical Analysis in the Research
13. Conferences Organization
14. How to Compete for a Research fund
15. The course for teacher preparation intensive course (**6 days**)

Teaching experiences:

I have been working in the Teaching filed for the past 20 years; next are some of the courses I delivered for the university level and the graduate students' level:

1. Nuclear Physics Lab
2. Radiation Physics Lab
3. Radiation Physics Lab
4. Numerical methods in Physics Lab
5. Solid state Lab
6. Using computers in Physics Lab
7. Fresh student Exp. Lab#1, 2
8. Fresh student Exp. Lab#3,4
9. Electronics Lab #1, 2, 3
10. Modern Physics Lab #1, 2
11. Introduction to nuclear physic
12. Introduction to radiation physic
13. Quantum mechanics
14. Computational physics
15. Biophysics Lectures
16. Introduction to Accelerators Physics
17. Numerical methods in physics
18. Free Electron laser and its applications
19. Nuclear reactions
20. Theoretical Physics and modeling
21. Quantum beam and its applications

Management Tasks:

- ✓ **Responsible** for the experimental lab timetable for the Physics department at Assiut university for four years (2004-2008).
- ✓ **Responsible** for quality assurance at the physics department, Assiut University (2002-2008), and (2012-2014).
- ✓ **Responsible** for scientific and academic trips for the bachelor grad at the physics department, Assiut University (2005-2007), and 2012-2013.
- ✓ **Board secretary** of the professor meeting at the physics department, Assiut University (2012-2013).
- ✓ **Lecturer and director Assistant** at Egyptian E-Learning University, Assiut center, Egypt (04.2013~07.2014)
- ✓ Responsible for the management of the academic and scientific reports at the Institute of Advanced Energy, Kyoto University Nagasaki Lab (2016-2018), and Konishi Lab (2019-2020).

Conferences organizations:

- ✓ 21st US-Japan Workshop on Fusion Neutron Sources and Applications (17-18th Dec. 2019, Kyoto University, Kyoto, Japan). (Main responsible)
- ✓ 20th US-Japan Workshop on Fusion Neutron Sources for Nuclear Assay and Alternate Applications (15-16th October 2018, University of Maryland, Washington, USA). (collaborative)
- ✓ 19th US-Japan Workshop on Fusion Neutron Sources and Applications (20-21st October 2017, Kansai University, Osaka, Japan). (collaborative)
- ✓ 18th US-Japan Workshop on Fusion Neutron Sources for Nuclear Assay and Alternate Applications (7-8th November 2016, University of Wisconsin, Madison, USA). (collaborative)

Computer Experiences:

- ✓ Different operating platforms: Windows, Linux, and Mac with all applications
- ✓ Familiar with Matrices and Computer Programming using MATLAB, Visual Basic, Mathematica, FORTRAN, C, C++, Maple Release, introduction to Python
- ✓ Interfacing programs Lab View, GUI,
- ✓ Beam dynamics of interaction between particles, rays with matter (Genesis, PARMELA, SUPERFISH, Kublai, FFT, ASTRA, GPT, FAST, MCNP, PHITS)

Research Experiences and interest:

- ✓ Quantum Beams
- ✓ Accelerator Science, DC & RF guns technology and operations
- ✓ Free Electron Laser MIR, FIR THz technology & applications
- ✓ Nuclear physics, fusion, and fission
- ✓ Plasma Physics, Inertial Electrostatic, and Magnetic confinement
- ✓ Neutron and protons generations and applications from compact sources
- ✓ Nuclear security,
- ✓ Numerical modeling and simulations
- ✓ Theoretical physics
- ✓ Thermoluminescence and fluorescence

References

Name	e-mail	Affiliation
Prof. Kai Masuda for project leader	masuda.kai@qst.go.jp	Rokkasho fusion Institute for Fusion Energy, QST, Aomori, Japan
Prof. Hideaki Ohgaki Ph. D Advisor	ohgaki@iae.kyoto-u.ac.jp	Graduate School of Energy Science, Kyoto University, Kyoto, Japan
Prof. Satoshi Konishi Current host	s-konishi@iae.kyoto-u.ac.jp	Institute of Advanced Energy, Kyoto University, Kyoto, Japan