

CURRICULUM VITAE

Personal Data:

Name : Mahmoud Abdel Aziem Bakr Arby
Nick Name : Mahmoud Bakr
Gender : Male
Nationality : Egyptian
Status in Japan : Permanent stay
Date of Birth : April 22. 1978
Place of Birth : Assiut – Egypt.
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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 Un., **Kyoto, Japan.**
- ❖ **Educational program (Oct. 2008~Sep. 2011):** Zero CO₂ Emission at Kyoto University.
 - **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 of 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 (1.2020~6.2021), **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 (2.2020~12.2020), **Project title:** Development of a simultaneous (neutrons and X-ray) radiography technique using a compact neutron source based on an IEC fusion device.
- ✓ **Program Assistant Professor** at the Institute of Advanced Energy Kyoto University, Japan (9.2019~1.2020), **Project title:** Development of a 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:** Develop a radiography technique using neutrons from a compact neutron source based on an 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 (10.2011~3.2012), **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.

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

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|--------------------------------------------------------------|---------------------------------------------------------|
| 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. Ethics of professionals | 17. Publishing of international journals |
| 16. Course for teacher preparation intensive course (6 days) | 18. Introduction to statistics in science |
| | 19. An advanced course in statistics |

Teaching experiences:

I have been working in the Teaching field for the past 21 years; next are some of the courses I delivered for the university level and the graduate students' level:

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|---------------------------------------|----------------------------------------------|
| 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 physics | 12. Introduction to radiation physics |
| 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. Advanced Nuclear Physics | 22. Accelerators physics and Reactors |
| 23. 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).

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.

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)

Publications:

1. Books (2) and chapter of books (2)
2. Journal papers: More than 60 international journal papers.
3. International Conferences and presentations: More than 55 a full refereed paper
4. Invited speakers and presentations and talks: More than 30 with a one-page abstract

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 and Electronics
- ✓ 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, photoluminescence, 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
Prof. Abdelhamid. Abo Sehly, Dean	sehly2020@yahoo.com	Faculty of Science, Assiut University

Mahmoud Bakr, Feb. 2022