Kamal M. A. AHMED

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PERSONAL DETAILS

Birth	03/12/1979
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Researchgate	https://www.researchgate.net/profile/Kamal_Ahmed19
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Google Scholar	https://scholar.google.fr/citations?user=S8DyZ9kAAAAJ&hl=fr
Publons	https://publons.com/researcher/3213947/kamal-m-ahmed/
ResearcherID	Web of science- AAF-3971-2019
Nationality	Egyptian
Profession	Assistant Professor
Martial Status	Married

HOME INSTITUTION

Name	Plasma and Nuclear Fusion Dept.-Nuclear Research Center - Atomic Energy Authority-Egypt
Address	P.O. 13759 - Inshass, AboZaabal, CairoEgypt
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EDUCATIONAL QUALIFICATIONS

Bsc Electronics Engineering

Electrical Engineering Dept., Faculty of Engineering
Minia University, Minia, Egypt

May 2001

Pre-Master in Electrical Engineering

Power electronics Dept., Faculty of Engineering
Cairo University - Egypt

May 2006

Master in Electrical Engineering

European Master in Nuclear Fusion and Engineering Sciences
Ghent University (Gent, Belgium)
Université Henri Poinçaire (UHP, Nancy, France)
Completense University (Madrid, Spain)

July 2009

PhD in Electrical Engineering

Electrical Engineering Dept., Faculty of Engineering at Shoubra
Benha University - Benha- Egypt

August 2014

EMPLOYMENT HISTORY

April 2003 **Teacher** Computer Science & Electronics in Advanced Technical Schools, Minia Egypt

Oct 2003 **Electrical Engineer** in Village Electricity Authority - Ministry of Electricity, Egypt

Feb. 2005 **Demonstrator** in EGYPTOR Tokamak (small Nuclear fusion)
Plasma & Nuclear Fusion Dept.-Nuclear Research Center - Atomic Energy Authority Egypt

Mar 2010 **Teaching-Assistant** in EGYPTOR Tokamak (small Nuclear fusion)
Plasma & Nuclear Fusion Dept.-Nuclear Research Center - Atomic Energy Authority Egypt

Nov. 2014 **Lecturer- Researcher** in Plasma Science and its applications
Plasma & Nuclear Fusion Dept.-Nuclear Research Center - Atomic Energy Authority Egypt

Jan 2018 **Post-doc fellowship** IFE-STDF grant IRFM- CEA- Cadarche -France

Jan. 2020 **Assistant Professor** in Plasma Science and its applications
Plasma & Nuclear Fusion Dept.-Nuclear Research Center - Atomic Energy Authority Egypt

WORK EXPERIENCE

- Good Exp. in Tokamak, Stellarator& Fusion reactors.
- Plasma sources; Designs, Construction, Diagnostic Techniques, Measurements, Applications, Research.
- Plasma focus characterization and modelling.
- Non-thermal plasma jet and its applications in polymer and biomedical applications.
- NBI for future fusion reactors

SOFTWARE SKILLS

* **Programming softwares:** Matlab, Simulink, visual basic for applications (VBA) in Excel
* **Scientific and Engineering software**
  - (Origin, Multi-sim, Electronic Workpench, Pspice, TINA, Fluent, ImageJ, Engauge, Gambit, Plasma Focus Lee's Model).
* **Desktop Publishing** (LaTeX, Office, Visio, Internet)
* **Work with different Operating Systems**

Awards and scholarships

- Prof. DR. Tomodaor El-khlafawy's Award for Plasma and Nuclear Fusion researches in Egypt, April 2020.
- FUSION-EP "European Master in Nuclear Fusion and Engineering Sciences" 2007-2009 European Union.
- STDF-IFE Post-doc fellowship, IRFM- CEA France 2018.

TRAINING AND ACTIVITIES

- ICP- MS Central Laboratory for Elemental and Isotopic Analysis in Egyptian Atomic Energy Authority

- Measurement Devices- Training Center, Egyptian Atomic Energy Authority
- FUSION-EP Summer School, Madrid, Spain, July 2008
- FUSION-EP Summer School, Nancy, France, July 2009
- Habilitation électrique (BO-HO-HOV), DEKRA, CEA, France, Feb 2018.
- Giving Lectures at 5 th PortSaid Summer School, March 2020.

PROJECTS

- Egyptor Tokamak "Joint Research Using Small Tokamaks", IAEA, Egypt, 2005- 2007.
- "FDTD simulation of wave propagation near screen in wind", Gent university, Belgium, 2007.
- "The March-on-in-Time Algorithm", Gent university, Belgium, 2008.
- "The corona wind and the cooling effect", Gent university, Belgium, 2008.
- "RF plasma diagnostics using interferometry ", Université de Lorraine (Nancy University 1), France, 2008.
- TJ-II Stellerator, Ciemat, Madrid, Spain, 2009.
- "Non-thermal Atmospheric Plasma Jet (Design, Ch-cs, Optimization, Applications.)", Nuclear Research Center, EAEA, Egypt, 2010-Present.
- "Plasma focus upgrading, simulation and applications", Nuclear Research Center, EAEA, Egypt, 2015-Present.
- Magnetron sputtering and applications, Nuclear Research Center, EAEA, Egypt, 2017-Present.
- Development of neutral beam injectors for future fusion reactors, DEIS, IRFM, CEA, France, 2018.

Supervision

- Ahmed Lashin, Master thesis, "Development of atmospheric-pressure non-thermal plasma jet device (32 W-ANPJ)", High-voltage Engineering, Electrical Engineering Department, Faculty of Engineering at Shoubra, Benha University, Cairo, Egypt, 2016.
- Ahmed Lashin, PhD thesis, "studies on low energy plasma focus", High-voltage Engineering, Electrical Engineering Department, Faculty of Engineering at Shoubra, Benha University, Cairo, Egypt, in preparation.

PUBLICATIONS

1. H. Hegazy, F. Diab, **K. Abd El-Aziz**, Yu. V. Gott, and M. M. Dremin, "Study of Possible Obstacles Preventing Obtaining a Tokomak Regime in the Egyptian Machine", International Journal of Plasma Science and Engineering, vol. 2010, Article ID 458616, 4 pages, 2010. doi:10.1155/2010/458616.
2. **Kamal Mohamed Abdelaziz Ahmed** , "Study, test of components and commissioning of the TJ-II radial field power supply", Erasmus Mundus Master in Nuclear Fusion Science and Engineering Physics, Madrid, Spain, 2009.
3. **Kamal Mohamed Abdelaziz Ahmed** , "Design and Experimental Investigations of Electrical Breakdown in a Plasma Jet Device and Applications", PhD thesis, Benha University, Faculty of Engineering at Shoubra, Electrical Engineering Department, 2014.
4. **K. M. Ahmed** , T. M. Allam, H. A. El-sayed, H. M. Soliman, S. A. Ward and E. M. Saied, "Design, Construction and Characterization of AC Atmospheric Pressure Air Non-Thermal Plasma Jet," Journal of Fusion Energy, vol. 33, no. 10, pp. 627633, 2014.

5. T. M. Allam, S. A. Ward, H. A. El-sayed, E. M. Saied, H. M. Soliman, and, **K. M. Ahmed**, "Electrical Parameters Investigation and Zero Flow Rate Effect of Nitrogen Atmospheric Nont-hermal Plasma Jet", Energy and Power Engineering, vol. 6, pp. 437-448, 2014.

6. H. A. El-sayed, T. M. Allam and, **K. M. Ahmed**, "Studies on Atmospheric Non-Thermal Plasma Jet Device", International Journal of New Horizons in Physics, vol. 3, no. 1, pp. 1-6 (2016), http://dx.doi.org/10.18576/ijnhp/030101

7. **K. M. Ahmed**, T. M. Allam, H. A. El-sayed, H. Soliman, S. Ward and E. Saied, "Wettability Improvement of Mylar substrate using N_2 gas and Air Atmospheric Nonthermal Plasma Jet", Arab Journal of Nuclear Sciences and Applications, vol., 94 no. 2, pp. 40-47, 2016

8. E. R. Shaaban, F. Diab Gamal El-Kashef, **K. M. Ahmed**, M. E. Abdel-kader and W. H. Gaber,"Effect of Inter-Electrode Distances of Glow Discharge on Structural and Optical Properties of ZnSe", Journal of Nanotechnology and Advanced Materials, (USA), vol. 4, no. 2, pp 33-44, 2016.

9. T. M. Allam, **K. M. Ahmed**, S. A. Ward, M. A. Abouelatta, A. A. Lashin, H. M. Soliman, "Development of a Low-Cost Atmospheric Non-Thermal Plasma Jet and its characteristics in Air and Nitrogen", European Physical Journal Applied Physics, vol 76, no. 1, 10803, 2016.

10. **K. M. Ahmed**, T. M. Allam, S. A. Ward, M. A. Abouelatta, A. A. Lashin, H. M. Soliman, "Insulating Material Erosion in Atmospheric Non-Thermal Plasma Jet Device", Telkomnika Indonesian Journal of Electrical Engineering, vol. 4, no. 1, pp. 20-28, 2016.

11. **K. M. Ahmed**, Sh. M. Eldeighdy, T. M. Allam, W. F.Hassanin, "Power Density Measurements to Optimize AC Plasma Jet Operation in Blood Coagulation", Australasian Physical & Engineering Sciences in Medicine, vol. 41, no. 3, pp. 621-632, 2018. Doi: 10.1007/s13246-018-0654-7.

12. **K. M. Ahmed**, T. M. Allam, W. F. Hassanin, Sh. M. Eldeighdy, "Bacterial Inactivation using Air Atmospheric Non-Thermal Plasma Jet", to be published.

13. W. H. Gaber, F. Diab, M. E. Abdel-kader and **Kamal M. Ahmed**, "Time-to-Pinch Investigation of 5 kJ Mather-type Plasma Focus Device", Journal of Fusion Energy, vol. 37, no. 1, pp. 30-36, 2018. Doi: 10.1007/s10894-017-0149-7

14. **Kamal M. Ahmed**, T. M. Allam, F. B. Diab, H. A. El-Sayed and H. M. Soliman, "Numerical Experiments to optimize Argon Soft X-Ray Yield in a Low-Energy Plasma focus", IEEE Transactions on Plasma Science vol. 47, no. 6, June 2019, DOI: 10.1109/TPS.2019.2914732.

15. **Kamal M. Ahmed** and H. A. El-Sayed, "Numerical Simulation of Neutron Yield production in Mather-type Plasma Focus", to be published.

16. **Kamal M. Ahmed**, H.P.L de Esch and A Simonin, "Protection against High-Energy Breakdowns in Neutral Beam Systems for Future Fusion Reactors", IEEE Transactions on Plasma Science 47(3):1663-1673, Feb. 2019, DOI: 10.1109/TPS.2019.2895250.

17. I. Morgal , G. Cartry, C.Grand, A.Simonin, **Kamal M.Ahmed**, R. Agnello, I. Furno, R. Jacquier and S. Bechu,"Characterization of the Helicon Plasma Generated Inside the Cybele Negative Ion Source with Different Magnetic Field Configurations", The 6th International symposium on Negative Ions, Beams and Sources, 3-7 September 2018, Novosibirsk, Russia.

18. Eldeighdye Shaimaa. M., , Abdel-Khalek L.G, , Taha M.S. , Allam T. M., , Hassanian W.F, **Ahmed K. M.**, Akaber T.Keshta, and Alfrarge .A, "Accelerated Wound Healing by Air Non-Thermal Plasma Jet of Diabetic Albino Rats", submitted to Australasian Physical & Engineering Sciences in Medicine.

19. **Kamal M. Ahmed**, R. Agnello, S. Béchu, G. Cartry, H.P.L. de Esch, I. Furno, P. Guittienne, A. Howling, R. Jacquier, I. Morgal, N. Sadeghi, and A Simonin, "Magnetic Field Configurational Study on A Helicon-Based Plasma Source for Future Neutral Beam Systems", Plasma Sources science technology, 28 (2019) 095005 (14pp), DOI10.1088/1361-6595/ab3705.

20. H.P.L. de Esch, C. Grand, A Simonin and **Kamal M. Ahmed** "Test of a 400 kV two-stage Bushing", IEEE Transactions in Plasma Science 47(8): 4170-4173, August 2019.

21. **Kamal M. Ahmed**, F. Diab, F. A. Ebrahim, W. H. Gaber, and M. E. Abdel-kader, "Experimental Investigations of a Low-Energy Linear Plasma Propulsion Device", Japanese Journal of Applied Physics, 59, 106001 (2020).

22. A. A. Lashin, T. M. Allam, H. A. El-sayed, **Kamal M. Ahmed** , S. A. Ward, M. A. Abouelatta, H. M. Soliman, Plasma Current Sheath Dynamics and Energy Dissipation in a Low Energy Plasma Focus Device, Arab journal of nuclear science and applications, Volume 53, Issue 1, Winter 2020, Page 222-233.

23. A. A. Lashin, T. M. Allam, H. A. El-sayed, **Kamal M. Ahmed** , S. A. Ward, M. A. Abouelatta, H. M. Soliman, Magnetic Field Induction and Magnetic Force Distribution Profiles in Plasma Focus Discharge Device, to be published.

24. **Kamal M. Ahmed** , T. M. Allam, A. A. Lashin, H. A. El-sayed, S. A. Ward, M. A. Abouelatta, H. M. Soliman, Correlation between Tapered Anode Dimensions of Argon Plasma Focus Device and Soft X-Ray Yield, to be published.

25. **Kamal M. Ahmed** , A. H. Bekheit and M. M. Abdelrahman, Simulation of the Radial Electric Field Shear in the Tokamak Edge Plasma, to be published.

26. T. M. Allam, **Kamal M. Ahmed**, H. A. El-sayed, H. M. Soliman, Automated Method for Optimizing Electrode Geometry of Low-Energy Plasma Focus Devices for Argon SXR Yield, to be published.

27. T. M. Allam, H. A. El-sayed, **Kamal M. Ahmed**, H. M. Soliman, Dependence of Soft X-ray Yield on Plasma Focus Parameters and its Kinetic and Magnetic Pressures, to be published.

28. Shaimaa M. Eldeighdye, Tarek M. Allam, Hanaa A. El- sayed, and **Kamal M. Ahmed**, Effect of air plasma on human hepatocellular carcinoma (HepG2) and normal liver (THLE2) cells, to be published

As A REVIEWER in journals

- Journal of Scientific Research and Reports (1 paper) 2016.
- IEEE Transactions on Plasma Science (7 papers) since 2019.
- Japanese Journal of Applied Physics (1 paper) since 2019.
- ADIYAMAN University Journal of Science (1 paper) since 2019.
- Plasma Research Express (2 papers) since 2020.

PERSONAL ATTRIBUTES

- **Enjoy working in a team environment**,

  taking on new challenges and learning new skills.

- **Excellent communication and teaching skills** ,

  teaching many courses in electronics & electrical engineering.

REFERENCES

- **Prof. Dr. Sayed A. Ward**

  (Prof. of High Voltage Engineering- Head of Electrical Engineering Department- Faculty of Engineering at Shoubra- Benha University- Cairo- Egypt).

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https://scholar.google.com/citations?hl=enuser=X$_2nPxsAAAAJ$

- **Prof. Dr. Ebtisam M. Saied**

  (Prof. of Power System Engineering- Formerly Head of Electrical Engineering Department- Faculty of Engineering at Shoubra- Benha University- Cairo- Egypt),

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  https://scholar.google.com.eg/citations?user=qF-cProAAAAJhl=en.

- **Prof. Dr. Hanaa M. Soliman**

  (Formerly Head of Material and Nuclear Manufacturing Division-Plasma & Nuclear Fusion Department, Nuclear Research Center Atomic Energy Authority, Cairo-Egypt).

- **Prof. Dr. Tarek M. Allam**

  (Plasma & Nuclear Fusion Department, Nuclear Research Center Atomic Energy Authority, Cairo-Egypt), tarekmya@hotmail.com. https://www.researchgate.net/profile/TarekAllam4