|  |  |  |
| --- | --- | --- |
|  | **Abd Elfattah Taha Elgendy**  **Department of Physics in Ain Shams University**  **El-Khalifa Al-Maamoun Street, Abbassia, Cairo, Egypt** |  |
| **Cellphone:** (+20) 102-452-9197  **Email:** [elgendy25@hotmail.com](mailto:elgendy25@hotmail.com) | |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **PERSONAL INFORMATION** | |  | | |  |  |
|  | |  | | |
| Nationality: | | Egypt | | |
| Marital Status: | | Married | | |
| Website: | | http://www.tet.ruhr-uni-bochum.de/lehrstuhl/mitarbeiter/abd-elfattah-elgendy/ | | |
|  |  | |
| EDUCATION | |  | |  | |  |
| 25/3/2022 | | Associated Prof. of Physics | |  | |  |
| 09/2009-05/2013 | | **Ruhr-Universität Bochum**  **Lehr­stuhl für Theo­re­ti­sche Elek­tro­tech­nik**  **Degree:** Doctor of Engineering in Plasma Technology  **Thesis Title**: Plasma Boundary Sheath as a Nonlinear Element | |  | |  |
| 10/2001-09/2008 | | **Ain Shams University (ASU), Cairo. Egypt**  **Department of Physics at Faculty of Science**  **Degree:** Master of Science  **Major:** Physics  **Thesis Title:** Minimizing Energy Losses in a Plasma-Filled Waveguide. | |  | |  |
| 10/1998-10/2000 | | **Ain Shams University (ASU), Cairo. Egypt**  **Faculty of Science**  **Department of Physics**  Master courses in Theoretical Physics | |  | |  |
|  | |  | |  | |  |
| 10/1994-10/1998 | | **Ain Shams University (ASU), Cairo. Egypt**  **Degree:** Bachelor of Science  **Major:** Physics  **Graduation Project Title:** Improving the Shielding in Nuclear Reactor by adding Lead to the concrete | |  | |  |
| 10/1988-05/1994 | | **Ibn Khaldon High School, Cairo, Egypt**  **Major:** Math and Science  **Grade:** Very Good (82%) | |  | |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **TEACHING EXPERIENCE** |  |  |  |
|  |  |  |  |
| 09/1998 – 09/2003 | Department of Physics in Ain Shams University  **Job Title:** Demonstrator  **Job Description:** Supervising freshmen and sophomore students in physics laboratory to implement basic physics experiments in electricity, magnetism, optics, material science, waves, electric circuits, and thermodynamics. |  |  |
|  |  |  |  |
| 09/2003 – 12/2007 | Department of Physics in Ain Shams University  **Job Title:** Teaching Assistant  **Job Description:** Supervising junior and senior students in physics laboratory to implement advanced physics experiments in laser, advanced optics, analog and digital electronics, microwave, and thermo-optics. |  |  |
|  |  |  |  |
| 01/2010 – 03/2013 | **Lehr­stuhl für Theo­re­ti­sche Elek­tro­tech­nik at RUB (DE)**  **Job Title:** Assistant Instructor  **Job Description:** Supervising discussion for senior and graduate students in plasma physics at TET institute. |  |  |
|  |  |  |  |
| 05/2014 | **Department of Physics in Ain Shams University (EG)**  **Job Description:** Supervising undergraduate student in graduation research project  **Project Title:** [Wireless Power Transfer](http://www.youm7.com/story/2015/12/15/%D8%B5%D8%AD%D8%A7%D9%81%D8%A9-%D8%A7%D9%84%D9%85%D9%88%D8%A7%D8%B7%D9%86-%D8%B9%D9%82%D9%88%D9%84-%D8%B9%D9%84%D9%88%D9%85-%D8%B9%D9%8A%D9%86-%D8%B4%D9%85%D8%B3-%D8%AA%D9%8E%D8%B9%D8%B1%D9%90%D8%B6-%D8%A7%D8%AE%D8%AA%D8%B1%D8%A7%D8%B9%D8%A7%D8%AA-%D9%84%D8%AD%D9%84-%D8%A3%D8%B2%D9%85%D8%A7%D8%AA/2491128#.VnA6G3h95di) |  |  |
|  |  |  |  |
| 03/2015 | **Higher Education Channel in Egyptian Radio and Television**  **Job Title:** Lecturer  **Job Description:** Introducing basics principles of physics to the public with a focus on undergraduate students in science engineering, computer science, and medicine.  List of Lectures:   1. [Coloumbs Law](https://www.youtube.com/watch?v=grifhG7CbDY) 2. [Gauss Law](https://www.youtube.com/watch?v=h7xJpSeMTmg) 3. [Electric Potential](https://www.youtube.com/watch?v=UgfPA64j4Qk&t=52s) 4. [Introduction to Magnetism](https://www.youtube.com/watch?v=J4Wg2TrisTE) 5. [Magnetic Field](https://www.youtube.com/watch?v=MvHAWKXAFhs) 6. [Magnetic Induction and Farady Effect](https://www.youtube.com/watch?v=32BsfoMjNi0) |  |  |
|  |  |  |  |
| 06/2016 | **Department of Mechanics at Faculty of Engineering (Mataria) in Helwan University**  **Job Description:** Supervising undergraduate student in graduation research project  **Project Title:** [Waste Tire Pyrolysis Recycling](https://www.youtube.com/watch?v=WeYanhWB2K0&feature=share) |  |  |
|  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **SCIENTIFIC PROJECTS** |  | |  |  |
| 1/1/2023  8/2020  4/2019  2/2018  10/2017  05/2015  01/2015 | **PI of PYTHAGORAS: ERASMUS-EDU-2022-CBHE (Capacity building in the field of higher education). Topic:** ERASMUS-EDU-2022-CBHE-STRAND-2**. Type of Action:** ERASMUS-LS. Proposal number: SEP-210827388**. Proposal acronym:** GREENING  **Co/PI of project of STDF**  **“**Exploiting Plasma as a Recent Technology for Enhancing Productivity and Quality of Some Cultivated Crops in Salt–Affected Soils in Egypt**”**  **Consultant at the Ministry of Agriculture**  **Co/PI of accepted project of STDF**  **“**Hydrocracking of tier pyrolytic oil to biofuels and super capacitor**”**  **Consultant at the Ministry of Environment**  **The yield of purified waste tires pyrolysis**  Consultant for integrated solid waste management in cooperation with the Ministry of Environment  **Collaboration between ASU (EG) and STDF**  A New Paradigm shift in Cancer Therapy using the effect of Plasma Jet  **Central Laboratory at Ain Shams University (EG)**  Participated in a project for studying an environmental responsible fabrication of efficient perovskite solar cells  [Modern technologies in medicine and industry.](https://www.youtube.com/watch?v=b0lfIQrJZW8&feature=youtu.be)  <https://www.facebook.com/groups/1596242773932845/> | |  |  |
|  |  | | | |
| **SCIENTIFIC RESEARCH SCHOOLS** |  |  | | |
| 01/2008 – 09/2009 | **Ruhr-Universität Bochum**  **Fakultät für Physik und Astronomie**  Aim of work:   * Dust Plasma * Electromagnetic wave interaction with dust Plasma | |  |  |
| **TECHNICAL REPORTS** |  | |  |  |
|  |  | |  |  |
| 09/2014 | Plasma Boundary Sheath  Publisher:  **Ruhr-Universität Bochum**  **Lehr­stuhl für Theo­re­ti­sche Elek­tro­tech­nik** | |  |  |
|  |  | |  |  |
| 06/2013 | Plasma Field  Publisher:  **Ruhr-Universität Bochum**  **Lehr­stuhl für Theo­re­ti­sche Elek­tro­tech­nik** | |  |  |
|  |  | |  |  |
| **COMPUTER SKILLS** |  | |  |  |
| Numerical Tools: | MATLAB, Mathematica | |  |  |
| Programming Languages: | Fortran, and Python | |  |  |
| Operating Systems: | Windows, Linux, and iOS | |  |  |
| Softwae: MS-Office (ICDL), LaTex, Origin, and Video Editing | | | |  |
|  |

**PUBLICATIONS**

|  |
| --- |
| 1. Abdelfatah Elgendy, Sameh A. Rizk Hanaa Y. Ahmed(3), Helmy E.A. Why Gold Nanoparticle Stimulated by Nitrogen Cold Plasma is More Active for Anti-cancer Therapy and Antimicrobial Theme Using DFT simulation., Journal of ***Clinical Plasma Medicine***, Personal communication, **2023** |
| 1. A. T. Elgendy, NM Basfer, N Al-Harbi, A collisional global sheath–Bulk model of argon plasma for semiconductor scale manufacturing,[Alexandria Engineering Journal](https://www.sciencedirect.com/journal/alexandria-engineering-journal), [Volume 67](https://www.sciencedirect.com/journal/alexandria-engineering-journal/vol/67/suppl/C), 15 March **2023**, Pages 437-446 |
| 1. Elgendy, A. T., Haifa A. Alyousef, and Kamal M. Ahmed. "New achievement of the global sheath-bulk model for the collisionless radio-frequency using in scale industries." Heliyon (**2022**): e12264. |
| 1. El‐Deeb, Zahraa M., Wael A. Aboutaleb, Abdelghaffar S. Dhmees, Ahmed MA El Naggar, Kareem Emara, Abdelfattah T. Elgendy, and Awad I. Ahmed. "Bio‐fuels production through waste tires pyrolytic oil upgrading over Ni‐W/zeolite composites derived from blast furnace slag." International Journal of Energy Research (**2022**). |
| 1. Abdel-Raouf, Mohamed Assaad, Abdelfattah T. Elgendy, and Amr Abd Al-Rahman Youssef. "Plasmas Created in the Interaction of Antiprotons with Atomic and Ionized Hydrogen Isotopes. Suggested Fuels for Space Engines." Journal of High Energy Physics, Gravitation and Cosmology 8.1 (2021): 14-24. |
| 1. Abdel-Raouf, Mohamed Assaad, Abdelfattah T. Elgendy, and Amr Abd Al-Rahman Youssef. "Cold Fusion Based on Matter-Antimatter Plasma Formed in Molecular Crystals." Journal of High Energy Physics, Gravitation and Cosmology 8.1 (2021): 56-66. |
| 1. Abdelfattah T. Elgendy, M. Fawzy, H. Saudy Treatment of plasma jet for highly saline wells in an attempt to break this high degree of salinity and be suitable for agricultural use, ***Journal of Plasma Sources Science and Technology***, Personal communication, **2022** |
| 1. Abdelfattah T. Elgendy, A Global Study of Classification Collisional & Collisional-less Bohm Velocity of Plasma Boundary Sheath Using Step Model, ***Physics Letters A***, Personal communication, **2021** |
| 1. Abdelfattah T. Elgendy, Samir El-Tantawy, Sameh A. Rizk, Plasma ozone compacted with Nano-zeolite purify waste tires pyrolysis oil (WTPO) and afforded New petroleum products based on the mathematical modified Arrhenius equation, ***Nuture Scientific Report***, Personal communication, **2022** |
| 1. A. T. Elgendy, “A Global Model of the Collisional Plasma Boundary Sheath Using Step Model,” IEEE Trans. Plasma Sci., 2021 |
| 1. S. A. Rizk, M. A. El-Hashash, A. A. Youssef, and A. T. Elgendy, “A green microwave method for synthesizing a more stable phthalazin-1-ol isomer as a good anticancer reagent using chemical plasma organic reactions,” Heliyon, vol. 7, no. 3, **2021.** |
| 1. S. A. El-Tantawy, S. Ali Shan, N. Akhtar, and A. T. Elgendy, “Impact of electron trapping in degenerate quantum plasma on the ion-acoustic breathers and super freak waves,” Chaos, Solitons and Fractals, vol. 113**, 2018**, doi: 10.1016/j.chaos.2018.04.037. |
| 1. S. K. Attia, A. T. Elgendy, and S. A. Rizk, “Efficient green synthesis of antioxidant azacoumarin dye bearing spiro-pyrrolidine for enhancing electro-optical properties of perovskite solar cells,” J. Mol. Struct., vol. 1184, **2019,** doi: 10.1016/j.molstruc.**2019.**02.042. |
| 1. S. A. El-Tantawy, A. T. Elgendy, and S. Ismail, “Cylindrical freak waves in a non-Maxwellian dusty bulk-sheath plasma: An approximate solution for the cylindrical nonlinear Schrödinger equation,” Phys. Lett. Sect. A Gen. At. Solid State Phys., vol. 381, no. 40, 2017, doi: 10.1016/j.physleta.**2017.**08.054. |
| 1. A. T. El-gendy, A. A. Youssef, and S. A. Rizk, “Which energetically favorable sustainable synthesis of 4-amino-8-azacoumarin ester or 4-hydroxy-3-cyano derivative based on new exact kinetic Arrhenius and DFT stimulation,” J. Iran. Chem. Soc., vol. 17, no. 5, pp. 1001–1011, **2020.** |
| 1. A. A. et al. Elgendy, A.E.T., Abdel-Aty, AH., Youssef, “Exact solution of Arrhenius equation for non-isothermal kinetics at constant heating rate and n-th order of reaction,” J. Math. Chem., doi: https://doi.org/10.1007/s10910-019-01056-7.**2019** |
| 1. A. T. Elgendy, “Plasma boundary of nonlinear sheath dynamics for arbitrary waveforms in capacitive discharge,” in Journal of Physics: Conference Series, **2019**, vol. 1253, no. 1, doi: 10.1088/1742-6596/1253/1/012010 |
| 1. **Study the effect of non-thermal atmospheric plasma jet of helium on normal and metastatic breast cell lines (**Has been selected as one of the best poster from Alexander von Humboldt workshop in Port Said**) 07/01/ 2015** |
| 1. **E. Elgendy**, H. Hatefinia, T. Hemke, M. Shihab, A. Wollny, D. Eremin, T. Mussenbrock, and R.P. Brinkmann, ‘An algebraic sheath model for all current wave forms and all levels of collisionality’ - <http://arxiv.org/abs/1306.1664/> **2013** |
| 1. J. Trieschmann, M. Shihab, D. Szeremley, **A. E. Elgendy**, S. Gallian, D. Eremin, R. P. Brinkmann, and T. Mussenbrock, “Ion energy distribution functions behind the sheaths of magnetized and nonmagnetized radio frequency discharges,” Journal of Physics D: Applied Physics, vol. **46**, no. **8**, p. 084016, **2013.** |
| 1. M Shihab, **A. T. Elgendy**, I Korolov, A Derzsi, J Schulze, D Eremin, “Kinetic simulation of the sheath dynamics in the intermediate radio frequency regime,” T Mussenbrock, Z Donk´o and R P Brinkmann, Plasma Sources Sci. Technol. **22** 055013/ **2013** |
| 1. Temporal investigation of ion dynamics in a radio frequency sheath - WELT-PP-14, Kerk­ra­de, The Nether­lands, 1-2 De­cem­ber/ **2011** |
| 1. [Ein al­ge­brai­sches Rand­schicht­mo­dell](http://www.tet.rub.de/forschung/veroeffentlichungen/ein-algebraisches-randschichtmodell/) . Ho­may­oun Ha­te­fi­nia, Abd El­f­at­tah El­gen­dy, Ralf Peter Brink­mann - PT 15, Stutt­gart, Ger­ma­ny, 28.​02-02.​03 **2011** |
| 1. [Cur­rent-vol­ta­ge cha­rac­te­ris­tics of non­har­mo­ni­cal­ly mo­du­la­ted plas­ma bo­un­da­ry she­ath](http://www.tet.rub.de/forschung/veroeffentlichungen/current-voltage-characteristics-nonharmonically-mo/)  Abd El­f­at­tah El­gen­dy, Ralf Peter Brink­mann, Ho­may­oun Ha­te­fi­nia - DPG Früh­jahrs­ta­gung ,Kiel, Ger­ma­ny, 28-31 March **2011** 2. [Char­ge-Vol­ta­ge cha­rac­te­ris­tics of non­har­mo­ni­cal­ly mo­du­la­ted plas­ma bo­un­da­ry she­aths](http://www.tet.rub.de/forschung/veroeffentlichungen/ch/)  Abd El­f­at­tah El­gen­dy, Denis Ere­min, Tho­mas Mus­sen­brock, Ralf Peter Brink­mann - Pro­cee­dings of the 30th In­ter­na­tio­nal Con­fe­rence on Phe­no­me­na in Io­ni­zed Gases (ICPIG), Bel­fast, Nort­hern Ire­land (**2011**) 3. F. El-Diasty, M. Soliman, A. Elgendy, A. Ashour, “Birefringence dispersion in uniaxial material irradiated by gamma rays: cellulose triacetate films”, Journal of Applied Optics: A pure and applied optics **2007** 4. A. El-gendy, “Dust plasma engine”, Miramare – Trieste, Italy, September **2006**. 5. M. Shalby, S. El-Labnay, W. El-Taibany, A. El-gendy, “Effect of streaming negative ion on Dust Acoustic Waves”, Miramare – Trieste, Italy, September **2006**. 6. S. Khalil, K. EL-Shorbagy, A. Elgendy, “Minimizing Energy Losses in a Unmagnetized Plasma-Filled Waveguide”, Assuit Conference on Radiation Physics, Egypt, **2002**. 7. S. Khalil , K. EL-Shorbagy, A. Elgendy, “Field Stability by the Electron Beam in a Warm Magnetized Plasma Filled Waveguide”, [Radio Science Conference, NRSC '99. Proceedings of the Sixteenth National](http://ieeexplore.ieee.org/xpl/mostRecentIssue.jsp?punumber=6156)**, 1999** |

#### Award

* Alexander von Humboldt Prize for the best research in combat developments in plasma physics in the fight against cancer 2013

A. et al. Elgendy, “ Study the effect of non-thermal atmospheric plasma jet of helium on normal and metastatic breast cell lines.

* The International Publication Award from Prof. Dr. Mahmoud El-Matini, President of Ain Shams University, for the research presented in the field of new calculations for green chemical reactions 2020

S. K. Attia, A. T. Elgendy, and S. A. Rizk, “Efficient green synthesis of antioxidant azacoumarin dye bearing spiro-pyrrolidine for enhancing electro-optical properties of perovskite solar cells,” *J. Mol. Struct.*, vol. 1184, 2019, doi: 10.1016/j.molstruc.2019.02.042.

#### Patent

Achieving exact mathematical solution of Arrhenius equation that studies the degree of pyrolysis. The patent shows the dissolution of rubber to its raw materials from petroleum derivatives with accurate temperature. The solution is matched with experimental results without any kind of approximation.

1. A.Elgendy, A.E.T., Abdel-Aty, AH., Youssef, “Exact solution of Arrhenius equation for non-isothermal kinetics at constant heating rate and n-th order of reaction,” J. Math. Chem., doi: <https://doi.org/10.1007/s10910-019-01056-7>.
2. Abdel Fattah Taha Elgendy, Abdul-Hamid Emwas and Mariusz Jaremko. "Improving the productivity of cultivated wheat seed crop at scale using plasma processing in Saudi Arabia" . KAUST Impact Acceleration Fund-2022

#### My Statement of Teaching

My motivation is to introduce the basics principles of physics to the public with a focus on undergraduate students in science engineering, computer science, and medicine.

I started several successful projects in Egypt concerning utilization of this basic science as I mention it in my CV. Such as making solar cell from perovskite, wireless current transfer, cancer therapy and integrated solid waste management.

I like to join between the basic science in teaching and making project with young student. These projects make students can build themselves and their career based on what strong basis of the fundamentals of science. As I say to my students Science is the best way to build your career,

|  |  |
| --- | --- |
| **SPOKEN LANGUAGES** |  |
| Arabic | Mother Tongue |
| English | Very Good |
| Dutch | Good (Deutschintensivkurs, Ägypten, Mittelstufe I). |