

Mohamed E. Yahia, PhD, M.Sc., B.Sc. (Hons.)

Hrasnička cesta 15, Ilidža 71210
Sarajevo, Bosnia and Herzegovina
Mobile: +387 62 716 424, office: +387 33 957 227

E-mail: meyahia@gmail.com / myahia@ius.edu.ba

IUS University web-page: <https://me.ius.edu.ba/people/mohamed-e-yahia>

Google Scholar: <https://scholar.google.com/citations?hl=en&user=QvuK4ToAAAAJ>

R^G: https://www.researchgate.net/profile/Mohamed_Yahia8

LinkedIn: <https://www.linkedin.com/in/yahia-m-27230923/>



EDUCATION

- November 2009 - October 2013 **Ph.D. Laser Sciences and Interactions**
National Institute of Laser Enhanced Sciences, Cairo University, Egypt.
In collaboration with Fakultät für Physik und Astronomie, Ruhr-Universität Bochum, Germany.
Dissertation title: *Quantum Plasma Waves and its Relevance to Laser Plasma.*
- February 2005 - February 2007 **M.Sc. Laser Sciences and Interactions**
National Institute of Laser Enhanced Sciences, Cairo University, Egypt.
Thesis title: *Gain Coefficients for Laser Emission in Magnesium Isoelectronic Sequences.*
- September 1998 - June 1999 **Diploma. Laser Systems** (Very good)
National Institute of Laser Enhanced Sciences, Cairo University, Egypt.
- September 1994 - May 1998 **B.Sc. Physics** (Very good with honors)
Faculty of Science, Cairo University, Egypt.

EXPERIENCE

- November 2014 - Present **Assistant Professor, International University of Sarajevo (IUS)**
[Faculty of Engineering and Natural Sciences \(FENS\)](#),
Sarajevo, Bosnia and Herzegovina
- February 2014 - October 2014 **Lecturer, [British University in Egypt \(BUE\)](#)**
Faculty of Engineering, El-Sherouk City,
Cairo, Egypt
- March 2007 - January 2014 **Lecturer Assistant, [British University in Egypt \(BUE\)](#)**
Faculty of Engineering, El-Sherouk City,
Cairo, Egypt
- September 2005 - March 2007 **Teaching Assistant, [Misr University for Science & Technology \(MUST\)](#)**
Faculty of Engineering,
6th of October City, Egypt
- January 2003 - September 2005 **Teaching Assistant, [Thebes Academy for Sciences \(ITA\)](#)**
Higher Institute of Engineering, Cairo, Egypt
- June 1999 - December 2002 **Product Specialist and Technical Support, [HORIZON](#) for Medical Appliances**
Cairo, Egypt
- September 1998 - May 1999 **Teaching Assistant, [Cairo University](#),**
Faculty of Science, Physics department,
Giza, Egypt.

ACTIVITIES (selected)

4 – 8 Dec. 2017	Data Gathering Methods for Qualitative Research Workshop. European University Viadrina in Frankfurt (Oder) Germany.
26 - 27 Oct. 2017	Poster Presentation, Nanoscale Quantum Optics - ESR Workshop 2017, Wigner Research Center, Budapest, Hungary.
3 – 14 July 2017	7 th International Workshop on Applications of Nanoscience and Nanotechnology (IWANN), UNAM, Bilkent University, Turkey.
28 Apr. 2017 - Present	Erasmus+ Coordinator, Faculty of Engineering and Natural Sciences (FENS), IUS, BiH;
14 Nov. 2016 - Present	Chair of Quality Assurance Committee, Faculty of Engineering and Natural Sciences (FENS), IUS, BiH;
24 Oct. 2016 - 23 Oct. 2020	Management committee member at “Advancing effective institutional models towards cohesive teaching, learning, research and writing development” CA15221 - COST European cooperation in Science and Technology, Belgium;
13-14 Sept. 2016	Joint workshop on “Single-photon technologies”. University of Oxford, Oxford, United Kingdom;
29 May - 3 June 2016	Invited speaker at Quantum Rogue Waves as Emerging Quantum Events Workshop. Aix-Marseille Université, Marseille, France
December 2015	Establishing the United Nations startup group at the International University of Sarajevo
14 - 17 Sept. 2015	Invited Speaker at the “Kickoff meeting of the Nanoscale Quantum Optics COST Action”. ICFO, Barcelona, Spain;
Nov. 2015 - Present	Action Expert for European Cooperation in Science and Technology; E-COST; COST Association, Brussels, Belgium;
1 Apr. 2015 - 1 Dec. 2018	BiH representative in Nanoscale Quantum Optics, MP1403 - COST European framework project, European Cooperation in Science and Technology; E-COST;
1 Mar. 2015 – 28 Feb. 2017	Mechanical Engineering Program Coordinator, FENS, IUS; http://me.ius.edu.ba/me-academic-staff
2010 - 2014	Research member at the Center for Theoretical Physics (CTP), British University at Egypt (BUE), Cairo, Egypt;
23 - 26 June 2013	Organizer Committee member at the 1st Workshop in Plasma Physics: Theory and Application, Port Said University, Port Said, Egypt;
1 Sept. 2012 - Present	Freelance Translator for Nature Publishing Group LTD (Arabic Edition); springernature.com
12 - 16 Dec. 2010	Fourth International Conference on Modern Trends in Physics Research, MTPR-10, Sharm El Sheikh, Egypt;
23 - 26 June 2010	Egypt Mathematica Conference, Cairo;
21 - 23 Feb.2010	International Workshop on Advanced Materials (IWAM) Ras Al Khaimah Center for Advanced Materials, United Arab Emirates;

1 - 15 Sept. 2008	COMSOL Multiphysics 3.4 Training course, British University in Egypt (BUE);
2008 - 2011	Technical and Scientific Consultant, Physics Instruments Photon Scientific company, Egypt;
15 - 18 Jan. 2007	Sixth International Conference on Laser Science and Applications, ICLSA-07, NILES, Cairo University, Egypt;
9 - 11 Sept. 2007	Summer School on Computational Techniques and Applications Scientific Research and Technology Academy, Egypt;
14 - 18 July 2007	Workshop at the International Max Planck research school for science and technology of nanostructure Martin-Luther-University Halle-Wittenberg, Germany;
2004 - 2006	Simulation Project for the Physics experiments (Virtual lab). Faculty of Engineering, Thebes Academy, Cairo, Egypt;
5 - 8 Aug. 2005	Regional Model United Nations Conference on the Millennium. Development Goals, World Federation of United Nations Association, South Africa;
2002 - 2003	Construction of a 4-wave mixing dependent tunable laser system. NILES, Egypt;
15 - 25 Jul. 2002	Product Sales Training. ELEKTA SYSTEMS, United Kingdom UK;
2001 - 2002	Glass-Ceramic Laser System Project. NILES, Cairo University, Egypt;
15 - 24 Aug. 2001	MED-TEC Equipment Training workshop. University of Iowa, USA;
1998 - 1999	Member of Computer Aided Education (CAE) as a Vehicle for the Modernization of the Educational System in the Egyptian Universities project Cairo University & American University in Cairo (AUC); Egypt.

SCIENTIFIC PUBLICATIONS

- **M. E. Yahia**, Quantum plasma entropy, Book chapter (in progress).
- U. Abdelsalam, **M. E. Yahia**, Nonlinearity in nano-dusty plasma "(submitted to Physics of Plasma);
- **M. E. Yahia**, and W. M. Moslem, *GaAs superluminescence due to electron pumping* (submitted to Scientific Reports 2017);
- R. E. Tolba, N. A. El-Bedwehy, W. M. Moslem, S. K. El-Labany, **M. E. Yahia**, *Nonlinear structures: cnoidal, soliton, and periodical waves in quantum semiconductor plasma*, Physics of Plasmas, Phys. Plasmas **23**, 012111 (2016);
- **M. E. Yahia**, et al., *Rogue waves lead to the instability in GaN semiconductors*, Scientific Reports **5**, Article number: 12245 (2015).
- **M. E. Yahia**, I. M. Azzouz, and W. M. Moslem, *Quantum effects in electron beam pumped GaAs*, Appl. Phys. Lett. **103**, 082105 (2013);
- I. Zeba, **M. E. Yahia**, P. K. Shukla, W. M. Moslem, *Electron–hole two-stream instability in quantum semiconductor plasma with exchange-correlation effects*; Physics Letters A **376** (2012) 2309–2313”;
- **M. E. Yahia**, et al., *Laser gain by electron Collisional pumping of Ar VII to V XII*. Optics & Laser Technology, Volume 40, Issue 8, November 2008, Pages 1008-1017;
- **M. E. Yahia**, et al., *Energies and oscillator strengths for Magnesium-like ions up to Vanadium XII*. The Arab International Conference in Recent Advances in Physics and Materials Science, Alexandria, Egypt, Sept. 2005;

- **M. E. Yahia**, et al., *Scaling of collisionally pumped ns-np (n=4-5) laser plasma in the Magnesium isoelectronic sequence*. The Arab International Conference in Recent Advances in Physics and Materials Science, Alexandria, Egypt, Sept. 2005;
- **In house publication:**
 - M. E. Yahia, A. GURSEL, *The validity of the scientific method in modern physics*, Periodicals of Engineering and Natural Sciences (PEN) 2 (2014).
 - M. E. Yahia, and W. M. Moslem, *Rogue wave recurrence in HEMT*, Periodicals of Engineering and Natural Sciences (PEN) 2 (2014).

HONORS & AWARDS (selected)

- Misr El Kheir knowledge Prize for publication excellence, Science, Technology and Innovation Program, Egypt (2013).
- The best PhD thesis at the NILES, Cairo University award (2013); Egypt
- National Institute of Laser Enhanced Sciences (NILES), M.Sc studentship (2005-2006); Egypt
- National Institute of Standard (NIS), postgraduate studentship (1999-2000); Egypt
- The 1st prize team winner for the scientific graduation projects, Misr University for Science & Technology (2006); Egypt
- The Best Teaching Assistant, Thebes Academy for Sciences (2005); Egypt
- Excellence student award, Faculty of Science, Cairo University, 1996-1997-1998; Egypt
- The first prize winner for the annual competition concerning the simple scientific writing from the Academy of Scientific Research & Technology (1996); Egypt.

ACADEMIC SKILLS & ABILITIES (selected)

- Teaching, developing and supervising Standard and Modern Physics courses (undergraduate): Atomic and Optical Physics, Bio-Physics, Classical Mechanics-Special Theory of Relativity, Electricity and Magnetism, Quantum mechanics, Electromagnetism, Laser Physics, Statistical Physics, Plasma Physics, and Thermodynamics;
- Teaching, developing and supervising Standard and Modern Physics courses (theoretical & experimental undergraduate): Atomic and Optical Physics, Bio-Physics, Classical Mechanics-Special Theory of Relativity, Electricity and Magnetism, Quantum mechanics, Electromagnetism, Laser Physics, Statistical Physics, Plasma Physics, and Thermodynamics;
- Teaching, developing and supervising Engineering courses: Statics, Dynamics, Vibrations, Thermodynamics, Fluids, Heat and mass transfer, Material Science, Introduction to Engineering, and Engineering Projects, Science, and Technology Studies (STS).
- Experience in Using up-to-date instructional methods/technology in preparing the teaching/practical material including interactive E-Learning, course outline, syllabus and lesson plans ensuring the delivery is clear, coherent and consistent with the learning outcomes;
- Experience in contributing to the European Association for Quality Assurance in Higher Education (ENQA), and the Quality Assurance Agency for Higher Education QAA.
- Experience in establishing metrics to measure the performance of the recipients, and ensure continuous improvement in performance to targeted objectives;
- Experience in improving Department's Delivery Performance and teaching productivity: Expedite design work, contribute ideas for marking process improvement, automate estimating and quote activity and improve productivity;
- Master thesis Mentoring (2 IUS students):
 - **Alimert Vuran** (Nano-Semiconductor's Comparison Based on Quantum Plasma Hydrodynamic Model) 2016.
 - **Gokhan Yildiz** (Comparative Performance Evaluation of Conventional and Novel Thermal Insulation Materials Used in Building Envelops), 2017.
- Supporting and participating in student organizational activities (Physics club, United Nations activities);
- Hands-on experience participating in departmental and faculty seminars aimed at sharing research outcomes and building interdisciplinary collaboration within and outside the department;
- Actively raises the Department and Faculty's profile, internally and externally through collaborating with colleagues, both within and outside the University, in conducting and managing research and consultancy activities;
- Hands-on experience in the solid state, gas, semiconductor laser systems, physical & geometrical optics, and all undergraduate physics laboratory equipment/instruments.

General Skills and Abilities

- Critical Thinking and Scientific Method skills;
- Organizing national and international event skills;
- Fluent in Arabic, Very good in English; and basic French.
- Experience in project management, budgeting, and evaluation methodologies;
- Public lectures about importance of Science (Technology) and their applications;
- Generating status summaries, and progress updates and publication quality reports/briefings;
- Knowledgeable and experienced with Linux and Windows Office applications: Microsoft Word, Excel, PowerPoint, movie maker etc;
- Experience with: Mathematica, Scientific work place, Sigma plot, Origin, COMSOL (Basic), 3D printing and advanced software codes for 3D imaging technology (Stereotactic techniques for radiation therapy);

Personal Data

Date of birth: 24/12/1976 Egypt
Nationality: Egyptian

REFERENCES

Prof. Dr. Thomas Durt

thomas.durt@centrale-marseille.fr

Ecole Centrale Marseille, Institute Fresnel
Marseille, France.

Prof. Dr. Waleed Moslem

wmoslem@hotmail.com

Port Said University,
Port Said, Egypt.

Prof. Dr. Ali Abdou

ali.e.abdou@uwalumni.com

Professor at Pennsylvania state
University-Harrisburg,
Harrisburg, USA.

Prof. Dr. Migdat Hodzic

mhodzic@ius.edu.ba

International University of Sarajevo,
Sarajevo, BiH.

RESEARCH STATEMENT

My current research is mainly based on Quantum Hydrodynamics QHD in semiconductor Plasmas. QHD linear analysis is Providing a suitable explanation of resonant tunneling processes and many ultrafast phenomena at ultra-small scales. However, when the amplitude of a wave in plasma grows sufficiently large, the nonlinearities in the QHD systems grow and cannot be neglected any more. So, QHD is then reduced to the Nonlinear Schrödinger equation (NLSE). NLSE has many properties characteristic of nonlinear waves, especially localized modes, solitons, beam-driven waves and instabilities.

It is worth mentioning that, QHD and NLSE models cover a huge number of applications and fields in ultra-dense plasmas and other similar topics as well. They also provide an alternative simpler method rather than first principle approaches such as quantum Monte Carlo and density functional theory or quantum-statistical methods such as quantum kinetic theory or nonequilibrium Green's functions which require substantial theoretical and computational efforts. Currently, I'm interested in the relation between Rogue wave and super-radiance, quantum droplets, quantum plasma entropy, the emission from nano-scale semiconductors and cold-plasma medicine.

TEACHING STATEMENT

“Education is what remains after one has forgotten what one has learned in school”, I do believe in this famous quote of Einstein that summarizes what should be done to correct the scientific educational process. No doubt that the greatest breakthroughs in Physics are always started by asking the right question that is generated based on a high level of knowledge. So, teaching should support two mechanisms, building the solid knowledge and implanting the curiosity (the motivation) for more knowledge by questioning. Enriching these mechanisms will fuel physics concepts and constructively implement the critical thinking process.

In general, I do my best to apply the critical thinking (the heart of any knowledge process) steps as a base for the scientific method in teaching. Explicitly, asking the question, introducing the scientific background, establishing the hypothesis, then testing the proposed hypothesis, ... are my intake to present and teach the topic.

On the other hand, “Learning Pyramid” argues that lectures are in the top of the Passive Learning Style with the lowest retention rates. Therefore, to transfer the lecture from the Passive to Active Learning style, I used to focus on the base of the learning pyramid activities. For instance, group discussion participation, and/or experimental demonstrations (if possible).

It is worth mentioning also that, I used to watch some related you-tube lectures from the top ranked universities before teaching, to enrich my teaching approach and providing the best examples to my students as well.

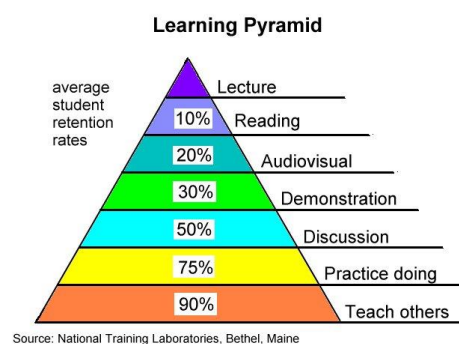
Therefore, I can summarize my teaching philosophy as follows:

Preparation of the Module:

- **Course Syllabus:** based on my experience, this is something always debatable. However, I do prefer to follow the world top-ranked universities as the main guideline with some amendments to fit the structure of the Program or faculty trend and capabilities. The syllabus and timeline should be obviously mapped and announced to students in the beginning of the semester through any Learning Management System, preferably E-Learning (if possible) or any free web sites like “easyclass”. My first lecture is always dedicated to introducing everything and exploring the road-map of the semester, syllabus content, as well as Aims, intended learning outcomes, methods of learning, teaching, assessment, and the text books. This will secure the clarity of the expectations and course requirements throughout the course timeline. I always enhance the topics by the recent demonstration software technologies provided by the latest version text books and physics websites.

My lecture

- **During the lecture:** I always try to design my lecture to implement the Active Learning style, i.e. BOPPPS model, starting with Bridge-in (Brain storming-critical thinking), defining Outcome, Pre-assessing the students’ knowledge of the topic (this is very important in the hard topics),



introducing the Participatory learning, Post-assessing what the students had learned, and finally giving a Summary. Sometimes little fun and open discussions in which students can run groups and communicate. The overall environment is planned to be dynamic, interesting and ensure students' involvement. Historical backgrounds are also useful tool in attracting the students' interest and stimulate their passion for learning, because it shows the emergent atmosphere and connections with other topics. Applying such procedure is a bit challenging, but by time it turns to be sort of habit.

- **After the lecture:** The follow up goes through the active participation in the tutorials, office hours, laboratory experiments, on-line communications (easyclass, e-learning,...), scientific trips, and general activities. Time and accessibility are the key parameters for the successful process.

- **Tutorial and laboratory:** They should be something like the outdoor garden of the lecture, where the student can work more collectively than the lecture. So, I always organize the time in agreement with the assistants to ensure the maximum efficiency. For the tutorial, I used to split the time into 3 parts, first part is for the assistant to guide the students in solving the problems, the 2nd part is for the interaction between the assistant and the students, and the last part is dedicated for the students themselves. For the lab., the students are guided to know how to think in a practical way, how to discover and measure the physical world, and how to follow and apply the procedure in a precise way.

- **The short and long-range relations:** The mutual respect and positivity between the elements of the education process, lecturer, assistants, and students is the soft power that keeps each one in the best performance.

- **The Assessments:** Beside the regular ways of assessment, I always try to test the transferred knowledge through several types of perceptions and understanding of the physical concept (Visual, Auditory, and Tactile/Kinesthetic) by asking several types of questions. I also ask for on-line quiz, presentations and projects with some supervision. It is worth mentioning that, I used to do some statistics to measure the performance and response of the students compared to my performance, and the type of the exam questions.

I would say that, from my experience, I became aware of the strong and weak points in the undergraduate educational process. So, I know how to optimize the effective academic elements and atmosphere to achieve the intended learning outcomes in a simple and effective way.