

# Curriculum Vitae

## I. PERSONAL DATA:

Surname: **Khedher Agha**                      Name: Ahmad Kamal Ahmad  
Nationality: **Iraqi**  
Date and place of Birth: **9<sup>th</sup> September 1963**, Baghdad, Iraq  
Sex: **Male**  
Marital Status: Married,



Home Address:            Baghdad, Iraq.  
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## II. ACADEMIC DEGREES :

### **B. Sc. In Physics**

September **1981** - June **1985**

**Department of Physics, College of Science, University of Baghdad**, Baghdad, Iraq.  
Average Grade: **79%**

### **M. Sc. In Physics**

October **1986**- December **1988**

**Department of Physics, College of Science, University of Baghdad**, Baghdad, Iraq.  
Average Grade: **81.3%**

**M.Sc. Thesis Title: Optical and Mechanical Properties of Plating on "ABS" Plastic,**  
**(in Arabic)**

### **Ph. D. In Physics (Optics of Charge Particles)**

October **1989** - October **1993**

**Department of Physics, College of Science, Al-Nahrain University**, Baghdad, Iraq.  
Average Grade: **83.4%**

**Ph.D. Thesis Title: Computerized Investigation on the Optimum Design and**  
**Properties of the Electrostatic Lens, (in English).**

### **III. PROFESSIONAL BACKGROUND:**

- 1- Member of the Physics Department Staff, College of Science / Al-Nahrain (Saddam) University since October **1993**
- 2- The **tutor** of the Physics Department since February **1994**
- 3- Member of departmental examination committee since February **1994** and **head** of this committee **from 1999- 2010**
- 4- **Assistant Professor** at the physics department Since **October 1998**
- 5- **Professor** at the physics department Since **May 2009**
- 6- **Head** of the physics department since the **1<sup>st</sup> of August 1999 to 1<sup>st</sup> of December 2010**
- 7- **Manager** of the **Scientific Consultative Office** at the College of Science/Al-Nahrain University since **Feb. 2004** to **1<sup>st</sup> of May 2011**
- 8- Member of the Academic Scientific Promotion Committee at the College of Science since 1999 to 2005
- 9- Member of the **Editorial Board** of the **Journal of Al-Nahrain University-Science (JNUS)**. A Scientific Refereed Journal (**ISSN: 1814-5922**),  
Email: [alnahrain-sci@hotmail.com](mailto:alnahrain-sci@hotmail.com), Baghdad, Iraq.
- 10- Member of research and publishing ethics at the College of Science/Al Nahrain University 2017
- 11- **Vice president** of the Association of University Lecturers (**AUL**) in Iraq since December 2004.
- 12- **President** of the (**AUL**) since November 2006.
- 13- **Vispresedent** of the Iraqi Academic Syndicate (**IAS**) since 25<sup>th</sup> November 2017

14- Supervising

**I supervise twenty six *M. Sc. students*, and thirteen *Ph.D. students* and more than thirty final year student projects.**

15- **Awards:**

I- Al-Nahrain University Prize for year 2016.

II- The Silver Medal for the Invention: "Design and Construction of Current Shunt Resistor for High Current Pulses" at the 2<sup>nd</sup> Istanbul International Invention Fair ISIF'17, Istanbul / Turkey, 2017

**16- Inventions**

I have one invention registered in Iraq with No. 4155

International Classification is H01L29/00/G0387/00

"Design and Construction of Current Shunt Resistor for High Current Pulses"

Kamal H. Latteef, Ahmad K. Ahmad, Bassma H Hamad, Ahmad KH. Kadhem

17- Teaching Experience:

Since October 1993, teaching the following undergraduate and graduate courses:  
(Teaching language is English)

- I.** Electromagnetic Theory / 3<sup>rd</sup> year physics
- II.** Electricity and Magnetism / 1<sup>st</sup> year physics
- III.** Electrical Measurements / 1<sup>st</sup> year physics
- IV.** Electronics / 1<sup>st</sup> year Computer Science
- V.** Vector Analysis / 2<sup>nd</sup> year physics
- VI.** Programming in FORTRAN languages / 2<sup>nd</sup> year physics
- VII.** Material Science / 1<sup>st</sup> year electrical and civil engineering students
- VIII.** Wave Phenomena / 2<sup>nd</sup> year physics
- IX.** Electron Optics / graduate physics students
- X.** Advanced Techniques in Solid State Physics / graduate physics students
- XI.** Numerical Solutions for Ordinary Differential Equations / graduate physics student
- XII.** Numerical Solutions of Partial Differential Equations / graduate physics student
- XIII.** Advance Electromagnetic Theory / graduate physics student
- XIV.** Electrodynamics / graduate physics student
- XV.** Optical System Design / graduate physics students
- XVI.** Non-Linear Optics / graduate physics student.
- XVII.** Fiber Optics / graduate physics student.

18- Member of the Iraqi Society for Physics. This Society is a member of the Pan Arab Union for Physicists and Mathematicians.

19- Member of the Iraqi Academic Syndicate.(IAS)

20- Member of the Administrative Commission of Home of Expertise (an Iraqi NGO)

21- A founding member of the Iraqi Center for University Studies (an Iraqi NGO)

22- Member of OSA (The Optical Society of America) since 2012

23- Member of IEEE since 2011

24- Member of ACM since 2013

25- I had attended the "First workshop on microcomputer applications in theoretical physics", 12-23rd January 1992, at the Scientific Centre of Theoretical and Applied Physics, Yarmouk University, Irbid, Jordan.

25- I am attending the following Conferences:

- I.** 8<sup>th</sup> Scientific Conference of the Iraqi Society for Physics & Mathematics, 4-7<sup>th</sup> October 1988, University of Mosul, Mosul, Iraq.
- II.** 9<sup>th</sup> Scientific Conference of the Iraqi Society for Physics & Mathematics, 11-15<sup>th</sup> September 1989, University of Selah Al-Deen, Arbial, Iraq.
- III.** 1<sup>st</sup> Conference of The College of Science, 18-19<sup>th</sup> March 1997, Saddam University, Baghdad, Iraq.
- IV.** 1<sup>st</sup> Engineering Conference of Al-Mustansiriyah University, 8-9<sup>th</sup> April 1997, Baghdad, Iraq.
- V.** 10<sup>th</sup> Conference of the College of Education, 9-10<sup>th</sup> April 1997, Al-Mustansiriyah University, Baghdad, Iraq.
- VI.** 2<sup>nd</sup> Conference of the College of Science, 21-22<sup>nd</sup> March 1999, Saddam University, Baghdad, Iraq.
- VII.** 1<sup>st</sup> Conference on Physics and Material Research IAEC, 27-28<sup>th</sup> March 1999, Baghdad, Iraq.
- VIII.** 1<sup>th</sup> Scientific conference of the Iraqi Society for Physics & Mathematics, 19-21<sup>st</sup> September 2000, University of Mosul, Mosul, Iraq.
- IX.** 4<sup>th</sup> Jordanian International Electrical & Electronics Engineering Conference (JIEEEEC-2001), 16-18<sup>th</sup> April 2001, Amman - Jordan.
- X.** 11<sup>th</sup> International Conference on Computer Theory and Applications (ICCTA 2001), 28-30 August 2001, Alexandria, Egypt.
- XI.** 3<sup>rd</sup> Symposium on scientific research and technological development outlook in the Arab world, 11-14<sup>th</sup> April 2004, Riyadh, Kingdom of Saudi Arabia.
- XII.** International Conference on Information & Communication Technologies: From Theory to Application, 24-28 April 2006, Damascus, Syria. (ICTTA2006).
- XIII.** The fourth Saudi technical conference & exhibition (STCX2006), 2-6<sup>th</sup> December 2006, Riyadh, Kingdom of Saudi Arabia.
- XIV.** Participation in the Arab translation (the translation in the Arab World: Reality and Expectations) hosted by the Arab Thought Foundation in Beirut, Lebanon for the period 25-27 / 9/2005.
- XV.** Participate in the Second Arab Forum for Education, (Higher Education Future Vision) hosted by the Arab Thought Foundation in Beirut, Lebanon for the period 28/9/2005 - 10/01/2005.

- XVIII.** Member of the Preparatory Committee of the Conference of academic freedom in Iraqi universities, which was held in two sessions, the first held in Al-Nahrain University / Faculty of Political Sciences (10-11-2005), Baghdad - Iraq. And the second in the Amman Centre for Human Rights Studies (10-2-2006), Amman - Jordan. And issued the Declaration of Baghdad - Amman Academy of freedom in Iraqi universities.
- XIX.** Participation in the Third Arab culture and education (education and sustainable development in the Arab world) hosted by the Arab Thought Foundation in Beirut, Lebanon for the period 24-26 / 4/2006.
- XX.** Participation in the Conference IV, "the prospects of scientific research and technological development in the Arab World" (SOR4), 11-14 / 12/2006, Damascus, Syrian Arab Republic.
- XXI.** Participation and preparation for the Workshop on academics and human rights, Amman - Jordan from 20 - 30/1/2008, in cooperation between the Association of University Lecturers from Iraq, Arab Forum Alternatives from Egypt, and Westminster Foundation for Democracy from Britain.
- XXII.** Participation in the seminar about the reality of power in Iraq and future prospects Sponsored by Ministry of Science and Technology, 2009.
- XXIII.** Participation and preparation for the workshop on networking between academics and parliamentarians in Iraq, held in Beirut, Lebanon, 1-10/5/2009, in cooperation between the Association of University Lecturers of Iraq and the Arab Forum Alternatives from Egypt and Westminster Foundation for Democracy from Britain.
- XXIV.** Participation and preparation for the workshop on the establishment of a parliamentary house experience in Iraq, held in Beirut, Lebanon, 1-7/3/2010, in cooperation between the Association of University Lecturers of Iraq and the Arab Forum Alternatives from Egypt and Westminster Foundation for Democracy from Britain.
- XXV.** Participation and preparation the Global Initiative Towards a Sustainable Iraq (GITSI)  
First Meeting of the National Coordination Committee, Amman 14-15/ March 2008.
- XXVI.** Attending a course in "Communication Skills with the Media" comprising 30 hours 25-29 January 2010 held by the Syrian International Academy, Damascus, Syria.
- XXVII.** The International Conference on Charged particle Optics (CPO-8), 12-16<sup>th</sup> July 2010 in Singapore (two papers were accepted).
- XXVIII.** The Engineering and Technology Symposium-4 (MTS4), 28<sup>th</sup> - 29<sup>th</sup> April 2011, Cankaya University, Ankara, Turkey (one paper accepted)

- XXIX.** Attending the first training school in nonlinear dynamics in optics and application held in the national institute of optics INO (Florence) Italy, 1<sup>st</sup> to 30<sup>th</sup> of October 2012.
- XXX.** Attending the course of "Preparation Directors of Research Centers" February 10-14, 2013, held at the Baghdad center for studies, consultation and information, Cairo, Egypt.
- XXXI.** Participate in the training program towards strengthening the role of academics in strengthening the national integrity system Held in collaboration between the Association of University Lecturers and the office of relations with non-governmental organizations in the Iraqi Integrity Commission. 22/6/2013.
- XXX.** Participate in the "9th International Physics Conference of the Balkan Physical Union" (BPU-9), "PSEUDOSPARK SWITCH (PSS) CHARACTERISTICS UNDER DIFFERENT OPERATION CONDITIONS", Istanbul / TURKEY August 24 – 27, 2015.
- XXXI.** Participate in the 2<sup>nd</sup> Istanbul International Invention Fair ISIF'17, with the invention: "Design and Construction of Current Shunt Resistor for High Current Pulses" Istanbul / TURKEY, March 2-4, 2017.

## **26- Research Interest**

I mainly interest in two fields of optics; the first field is the charged particle optics. In this field I work to simulate and design electromagnetic lenses (electric, magnetic and quadrupoles), I study the trajectories of the beams and their aberrations to high orders and finding the optimum design. I build my own programs using Fortran 77, and using SIMION 8 program.

The second field is the nonlinear optics, in this field I work with my student Synchronization of chaos in optical communication systems. Also I work simulation and design and fabricating optical sensors using photonic crystal fibers. Also I work on designing optical systems (like telescopes and cameras) and antennas with my students.

## **LIST OF PUBLICATIONS**

- 1-Musa, A.H., Ahmed, J. K., Ahmad, A. K. (1989): Mechanical properties of electroplated ABS plastic. Egyptian Journal of Solids 12, 213-225.
- 2-Musa, A.H. and Ahmad, A.K. (1991): The effect of etching duration on the surface morphology of ABS plastic plated with electroless copper. Journal of Mathematics and Physics. (Iraqi Soc. of Phys.& Math ). 12 (1), 237-255.
- 3-Musa, A.H. and Ahmad, A.K. (1991): Effect of etching bath on the surface morphology of ABS before and after electrolyze copper plating. Journal of Mathematics and Physics. (Iraqi Soc. of Phys. & Math). 12 (2), 168-178. (in Arabic)
- 4-Yaseen, S. Kh., Ahmad, A. K., and Juma, S. M. (1997): Design of two-electrode electrostatic lenses for zero magnification under space-charge effect. Proceeding of The First Conference of The College of Science, Saddam University, 1, 143-154, Baghdad, Iraq.
- 5-Ahmad, A. K., Juma, S. M. and Yaseen, S. Kh., (1998): Effect of space charge on the design of low aberration einzel lens. Journal of Saddam University. 2(1) 73-81, Iraq.
- 6-Ahmad, A. K. (1998): Computerized design of a unipotential lens with small relativistic spherical and chromatic aberrations. Journal of the College of Education, Al-Mustansiriyah University, 3,1-16, Iraq.
- 7- Ahmad, A. K., Juma, S. M. (1999): Computer-Aided-Design of two-electrode electrostatic lenses under space-charge effect. . Journal of Saddam University. 3 (1), 47-56., Iraq.
- 8-Ahmad, A. K., Juma, S. M. and Yaseen, S. Kh., (1999): Computation on the design of three-electrode electrostatic lenses for zero and infinite magnification. Journal of the College of Education, Al-Mustansiriyah University, 3, 65-72, Iraq.
- 9- Ahmad, A. K., (1999): Polynomial electrostatic lens. Journal of Saddam University. 3(1), 67-75.
- 10-Yaseen Al-Ani, S. K., Ahmad, A.K., Hasoon, S. A. (2000): Effect of laser beam energy on the hardening of carbon steel. . Journal of Saddam University (Science). 4(1), 161-163. Iraq.
- 11- Juma, S. M., Ahmad, A.K., and Qaseer, L. M. W., (2000): An Electrostatic Lens System Design for Telescopic Mode of Operation. Journal of the College of Education, Al-Mustansiriya University, 5, 1-12, Iraq.
- 12- Juma, S. M. , Ahmad, A. K., Al-Nakeshli ,I. S. and Al-Obaidi , H. N., (2001): A mathematical Investigation in to the resolution limit of photo-electron spectro-microscope. Journal of the College of Education, Al-Mustansiriya University, 1, 77-86, Iraq.
- 13-Ahmad, A. K. and Juma, S. M. (2001): Design of two-electrode electrostatic lens for Different magnification conditions. Proceeding of The 4<sup>th</sup> Jordanian International Electrical & Electronics Engineering Conference (JIEEEEC-2001), 16-18<sup>TH</sup> April 2001, pp259-263, Amman, Jordan .
- 14- Taqi, H. A., Radhi, R. A., and Ahmad, A. K. (2001): Collective, Low Lying Isoscalar Transitions in <sup>40</sup>Ca. Indian Journal of Physics, 75A(5), 563-565.
- 15- Radhi, R. A., Taqi, H. A., and Ahmad, A. K. (2001): Random Phase Approximation with High Orbits Configuration for the Low Lying Negative Parity, T=0 States in <sup>16</sup>O. Indian Journal of Physics, 75A(3), 255-258.

- 16- Al-Ani, L. A., [Ahmad, A. K.](#), and Jasim, Y. A., (2001): Computer aided system for diagnosis the arrhythmia heart diseases, Proceeding of The 11<sup>th</sup> International Conference on Computer Theory and Applications (ICCTA 2001), 28-30 August 2001, Alexandria, Egypt.
- 17- [Ahmad, A. K.](#), Juma, S. M. and A. A. Al-Tabbakh, (2002): Computer aided design of an electrostatic FIB system. Indian Journal of Physics 76B (6), 711-714.
- 18- Yaseen Al-Ani, S. K. , [Ahmad, A.K.](#), and Mohammed ,I. A.,(2002): Design of four electrode einzel electrostatic lens for electron gun. Journal of the College of Education for Woman , Baghdad University ,13, (4),783-789.(in Arabic)
- 19- Juma, S. M., Al-Mudarris, F. A., and [Ahmad, A.K.](#), (2002): A hyperbolic potential field model for designing an einzel lens of low aberrations. Iraqi Journal of Physics ,1 (1) 61-68.
- 20- [Ahmad, A. K.](#), Al-Ani, L. A., Jasim, Y. A., (2004): Computer aided system Diagnosis the Myocardial Heart Diseases, Journal of Al-Nahrain University (Science), 7(1) 93-100, Iraq .
- 21- Juma, S. M., Ahmad, A.K., and Al-Mudarris, F. A., (2004): A computational investigation on some properties of electrostatic immersion lens, Journal of Al-Nahrain University (Science), 7 (1) 153-163, Iraq.
- 22- Al-Mudarris, F.A., Juma, S.M., and [Ahmad, A.K.](#), (2004): Design of a multi-electrode immersion lens for ion implanters, The third symposium on scientific research and technological development outlook in the Arab world, 11-14<sup>th</sup> April 2004, Riyadh, Kingdom of Saudi Arabia.
- 23- Hamad, B. H. , [Ahmad, A. K.](#) , and Juma,S. M. , (2005): Some optical properties of an electrostatic immersion lens using the charge density method, Iraqi J. of Appl. Phys., 1 (3) 21-27, Iraq.
- 24- Mohammed, A.A., Subhi, H., [Ahmad, A.K.](#), (2006): Cavity model analysis of rectangular microstrip antenna operating in TM<sub>03</sub> mode, Proceeding of ICTTA' 2006, vol2, p811, Damascus, Syria. (ISBN: 0-7803-9521-2 ).
- 25- Al-Mudarris, F. A.J., Juma, S. M., and [Ahmad, A.K.](#), (2006): Design of a multi-electrode immersion lens for ion-optical systems. Iraqi J. of Appl. Phys., 2 (1-2) 27-30, Iraq.
- 26- Al-Ani, L. A., [Ahmad, A. K.](#), Jasim, Y. A., (2006): Computer aided system Diagnosis the Arrhythmia Heart Diseases, Journal of Al-Nahrain University (Science), 9(2) 116-122, Iraq.
- 27- [Mohammad, A. A.](#) ; [Subhi, H.](#) ; [Ahmad, A. K.](#) ; [Juma, S. M.](#); (2006), Bandwidth enhancement of stacked rectangular microstrip patch antenna, 7th International Symposium on Antennas, Propagation & EM Theory, Proceeding of ISAPE '06, pp 1 - 13 (ISBN: 1-4244-0162-3 )
- 28- [Ahmad, K. A.](#), Al-Tabbakh, A. A., and Juma, S. M., (2006): Optical Properties of Two-Interval Spline Electrostatic Lens Model. The 4<sup>th</sup> Conference on Scientific Research Outlook &Technology Development in the arab world SOR4, Dec.11-14, 2006 – Umayyad Palace , Damascus Syrian Arab Republic.
- 29- [Ahmad, A. K.](#), Ali, F. A., and Juma, S. M., (2007): Computer-Aided-Design of an electrostatic lenses column by using a combined dynamic programming procedure and artificial intelligence technique. i-manager's Journal on Future Engineering & Technology, 2(2) 87-93,(in English).
- 30- [Ahmad, K. A.](#), Rasen, F.A., Fadhil, S.A., (2008): "A Mathematical Model to Describes the Densification Process during the Sintering of Ceramic Compacts". Iraqi J. of Appl. Phys., 4(2)11-18,.



- 31- Ahmad, A. K., Ajeel, K. K. , and Hamad, B. H. , (2010): Design an electrostatic immersion lens using the charge density method, Journal of Al-Nahrain University (Science) , 13 (1) 60-68, Iraq .
- 32- Ahmad, A. K., Mohammed, H. H., and Khorsheed, S. M., (2009): MTF estimation for IR optical systems, Accepted at the Journal of Al-Nahrain University (Science), Iraq.
- 33- Ahmad, A. K., Ali, F. A., (Accepted at CPO-8): Magnetic lens using a combined dynamic programming procedure and artificial intelligence technique, Singapore. 12-16 July 2010
- 34- Ahmad, K. A., Mohammed, M.A., (Accepted at CPO-8,): Computer Aided Design of Electrostatic Octupole Deflector Using Charge Density Method, Singapore. 12-16 July 2010
- 35- Mohammad, A. A., Subhi, H., and Ahmad, K. A., (2011): Broadband Capacitively-Fed Slotted Square Patch Microstrip Antenna, Accepted in Engineering and Technology Symposium-4 (MTS4), Ankara, Turkey.
- 36- Al-Ani, S. Kh., Ahmad, K.A., Hussein, B.H., Computer aided design for a system of focusing of charge particles using two electrostatic lenses of two and three electrodes by inverse problem method, the fifth scientific conference, Wasit University, (in English) 13-14 December 2011, pp736-744.
- 37- Yassin S. Kh., Ahmad, K.A., Hussein, B.H., Computer aided design of an electron optical transport and focusing system, accepted for publication at the nineteenth conference college of education, Al-Mustansirya University, (in English) 25-26 April 2012.
- 38- Hussain, B. H. , Ahmad, K. A., (2013): Design for two electrodes electrostatic mirror by using the Bimurzaev technique, Ibn Al-Haitham Journal.(Pure and applied Science) accepted in 19<sup>th</sup> May 2013.
- 39- Ahmad, K. A., Mohammed, H. H., and Khorsheed, S. M, (2013): MTF Estimation for IR Optical Systems , Journal of Al-Nahrain University (Science) , 16 (2) 104-109, Iraq .
- 40- Yaseen, Noor M. H. and Ahmad, K. A., (2013): Plotting the Profiles of Cartesian Surfaces by Ray Tracing, Accepted at Journal of Al-Nahrain University (Science).
- 41- Ahmad K. Ahmad, Fadhil A. Ali, Ahmed. A. Al-Tabbakh, and Sabah. M. Juma, (2014): Computer-Aided-Design of a Magnetic Lens Using a Combined Dynamic Programming and Artificial Intelligence Techniques, Iraqi J. of Appl. Phys., vol. 10, Accepted at 1<sup>st</sup> April 2014.
- 42- A. Candiani ; Hussein T. Salloom ; E. Coscelli ; M. Sozzi ; A. Manicardi ; Ahmad K. Ahmad ; A. Hadi Al-Janabi ; R. Corradini ; G. Picchi ; A. Cucinotta ; S. Selleri, (2014): bio-functionalized hollow core photonic crystal fiber for label-free DNA detection, Proc. SPIE 8938, Optical Fibers and Sensors for Medical Diagnostics and Treatment Applications XIV, 89380T (February 20, 2014); doi: 10.1117 /12.2039665
- 43- Kamal H. Lateef<sup>1</sup>, Bassma H.Hamad and Ahmad K. Ahmad, (2015): New Design and Construction of High voltage High Current Pseudo-spark Switch (PSS), IEEE TRANSACTIONS ON PLASMA SCIENCE, 43 (2), 625-628, FEBRUARY 2015.
- 44- Y.Th. Younis, Salam K. Musa, S.F. Abdalah, Ahmed K. Ahmed, R. Meucci, K.A. Al Naimee, The rule of bias current of semiconductor laser in chaos communications, (2016): Results in Physics 6 , 243–251, doi: <http://dx.doi.org/10.1016/j.rinp.2016.04.002>

- 45- Y.Th. Younis, Salam K. Musa, S.F. Abdalah, Ahmed K. Ahmed, R. Meucci, K. M. Jameel, K.A. Al Naimee, (2016): Synchronization in optically coupled chaotic system optical feedback, *IJAP*, vol. (12), no. (1), pp. 11-16.
- 46- Ahmad K. Ahmad, Mohammed F. Majeed, (2016): Calculation of Acousto-Optic Figure of Merit for Some of Oxide Crystals, *International Journal of Optics and Applications*, 6(1):pp 1-6
- 47- B. H. Hamad, K. H. Lateef, and A. K. Ahmad, (2016): Pseudo-spark switch (PSS) characteristics under different operation conditions, *PHYSICS OF PLASMAS* 23, 083528.
- 48- Soror A.Mahdi , Suha M. Khorsheed , Hussein T. Salloom, Ahmed K. Ahmed, (2016): Synthesis and Refractive Index Characterization of EBBA Liquid Crystal, *Journal of Al Nahrain University - Science* 19 (1), 98-103
- 49- Kamal H. Latif, Alaa H. Ali, Suha M. korsheed, Wildan M. Awad, Ahmad K. Ahmad, (2016): Detection of energetic materials by laser induced breakdown spectroscopy technique, *international Journal of modern trends in engineering and research*, 3(8), pp260-264.
- 50- Khalil Ibraheem Imhan, B.T.H.T. Baharudin, Azmi Zakaria , Mohd Idris Shah b. Ismail , Nasser Mahdi Hadi Alsabti , Ahmad Kamal Ahmad, (2016), The Impact of Tube Diameter and Thickness on Laser Tube Bending Process, *Buletin Optik* (3):35-40, eISSN no: 2504-8546, [www.laser.utm.my](http://www.laser.utm.my)
- 51- Khalil Ibraheem Imhan, B .T.H.T. Baharudin , Azmi Zakaria , Mohd Idris Shah B. Ismail , Nasser Mahdi Hadi Alsabti and Ahmad Kamal Ahmad, (2017), An Analytical and Experimental Investigation of Average Laser Power and Angular Scanning Speed Effects on Laser Tube Bending Process, *ICMME 2016* , MATEC Web of Conferences 95, 05008. DOI: 10.1051/mateconf/20179505008 .
- 52- Khalil Ibraheem Imhan, B.T.H.T. Baharudin, Azmi Zakaria, Mohd Idris Shah B. Ismail, Nasseer Mahdi Hadi Alsabti, Ahmad Kamal Ahmad, Investigation of material specifications changes during laser tube bending and its influence on the modification and optimization of analytical modeling, *Optics & Laser Technology*, Volume 95, 1 October 2017, Pages 151-156
- 53- Khalil Ibraheem Imhan, B.T.H.T.Baharudin, Azmi Zakaria, Mohd Idris Shah B.Ismail, Nasseer Mahdi Hadi Alsabt, Ahmad Kamal Ahmad, Improve the material absorption of light and enhance the laser tube bending process utilizing laser softening heat treatment, *Optics & Laser Technology*, Volume 99, 1 February 2018, Pages 15-18
- 54- Ban M. Al Bayati, Ahmad K. Ahmad, and Kais A.M. Al Naimee, "The Influence of Optical Feedback Strength and Semiconductor Laser Coherence on Chaos Communication" *Journal of the Optical Society of America B* 35(4) 918-925, 2018
- 55- Ban M. Al Bayati, Ahmad K. Ahmad, Chapter title" coherent resonance in optically feedback chaos: hiding frequency in chaos communications" *Chaos Theory*, ISBN 978-953-51-5712-0. Editor : Kais A.M. Al Naimee.
- 56- Zeina Khalifa1 , Hussein T. Saloom , Saif A. Mohammed and Ahmad K. Ahmad, " Numerical Simulations of HC-PCF Filled with Different Liquids for Sensing Applications", *International Research Journal of Advanced Engineering and Science*, Volume 3, Issue 1, pp. 253-257, 2018.
- 57- Aymen Amer and Ahmad K. Ahmad, "Differential algebraic description for aberrations analysis of typical electrostatic einzel lens", *Optik*, vol. 168 (2018) 112-117 , <https://doi.org/10.1016/j.ijleo.2018.04.071>
- 58- Zeina Khalifa, Hussein T. Saloom and Ahmad K. Ahmad, (To be Published) " Numerical Simulations of HC-PCF Filled with Different Bio-Liquids for Bio-Sensing Applications", to be Published.
- 59- Mohammad, A.A., Subhi, H., and Ahmad, K. A., (To be Published):" Broadband Capacitively-Fed Slotted Square Patch Microstrip Antenna".

60- Hussein T. Salloom, and Ahmad K. Ahmad, (To be published): "Numerical Analysis of Liquid Filled Hollow Core Photonic Crystal Fibre for Optical Sensing",

## **List of M.Sc. Thesis's I Supervise**

- 1- An electrostatic lens with small relativistic spherical and chromatic aberration. (April 1997), College of Science, Al-Nharin University (Saddam University), Mustafa K.M. Al-Qaradaghi , (in English).
- 2- Design of electrostatic lens under telescopic operational conditions. (April 1998), College of Science, Al-Nharin University (Saddam University), Luay M.W.M. Qaseer , (in English).
- 3- Computations on wave front aberration function. (February 2000), College of Science, Al-Nharin University (Saddam University), Abraham A. Sadiq , (in English).
- 4- An automated system for multilead and single lead electrocardiogram analysis. (June 2000), College of Science, Al-Nharin University (Saddam University), Yassir A. Jasim, (in English).
- 5- Design of a focused ion beam (FIB) system using the inverse problem procedure. (October 2000), College of Science, Al-Nharin University (Saddam University), Ahmed A. Ahmed, (in English).
- 6- Design of a system of electrostatic lenses operated under different magnification conditions (October 2000) College of Science for Women, Baghdad University, Bushra H. H. Ali, (in Arabic).
- 7- Computer-Aided-Design of an electrostatic mirror of improved aberrations. (March 2002), College of Science, Al-Nharin University (Saddam University), Mayada M. M. Al-Azzawi, (in English).
- 8- Theoretical design of an electron gun lenses using numerical methods. (September 2002), College of Science for Women, Baghdad University, Intehaa A.M. Al-Mashhadany , (in Arabic).
- 9- A study of electron charge density of Lithium negative ion. (October 2002), College of Science, Al-Nharin University (Saddam University), Areej N. Toma , (in English).
- 10- Optical properties of an electrostatic quadrupole lens. (October 2002), College of Science, Al-Nharin University (Saddam University), Hayder K. Hannon , (in English).
- 11- Design of an electrostatic lens using charge density method. (December 2003), College of Science, Al-Nharin University (Saddam University), Bassma H.H. Al-Shammary, (in English).
- 12- Mathematical manipulation to study the changes of porous structure with the formation of porous structure materials. (April 2005). College of Science, Al-Nharin University, Sadeem A.F. Al-Qassb ,(in English).
- 13- Design of electrostatic lenses using limited hyperbolic functions. (June 2005), College of Education, Al-Mustansiriyah, Ammar H. Muhammad, (in Arabic).
- 14- Calculation of effect of electronic correlation force on the energy of some atoms. (September 2005), College of Science for Women, Baghdad University, Naaema C.M. Al-Tamimej, (in Arabic).
- 15- Correction of some types of aberrations using electrostatic lenses operated under space charge effect for focusing ion beams. (October 2005), College of Education, Al-Mustansiriyah, Bilal Kh.J. Al-Mashhadany . ,(in Arabic).

- 16- Design and analysis of the 3.2-4.2 $\mu$ m spectral region. (June 2006), College of Science, Al-Nharin University, Safa'a A.S.A. Al-Kaysi. ,(in English).
- 17- The aberration correction due to misalignment in electrostatic lenses. (October 2006), College of Science, Al-Nharin University, Roaa T.A. Al-Sumaidae. ,(in English).
- 18- Analytical-computational study of the reflecting telescope parameters. (December 2006), College of Science, Al-Nharin University, Noor M. H. Yaseen, (in English).
- 19- Design of an electron mirror as an aberration corrector using the boundary value problem. (March 2007), College of Science, Al-Nharin University, Mohammed S. Mzahim. ,(in English).
- 20- computer-aided-design of a magnetic mirror. (April 2007), College of Science, Al-Nharin University, Husain A. Whaiab. ,(in English).
- 21- Computer-aided-design of electrostatic deflectors using the charge density method. (October 2007), College of Science, Al-Nharin University, Mahdi A. Mohammed, (in English).
- 22- Computer-aided-design of a magnetic deflector and a lens system. (December 2008) College of Science, Al-Nharin University, Ahmed Hussain. (in English).
- 23- Computer simulation of an Acousto-Optical device for photonic system. (December 2010) College of Science, Al-Nharin University, Marwa Kamal Mustafa. (in English).
- 24- Signal Inhasment of Acousto-Optic Modulators, (December 2015) College of Science, Al-Nharin University, Mohamed Foad. (in English).
- 25- Simulation of photonic crystal fiber biosensors using finite element method, Zena Aldulaimi, finished in April 2018 (in English).
- 26- Design of electron lenses using the deferential algebraic method, Aymen Amer, finished in June 2018 (in English).

## **List of Ph.D. Thesis's I Supervise**

- 1- Electro excitation of closed-shell nuclei (  $^{16}\text{O}$  and  $^{40}\text{Ca}$  ) in the framework of large extended space random phase approximation (RPA). (February 2000), College of Science, Al-Nharin University (Saddam University), Ali H.T. Al-Bayati ., (in English).
- 2- Computer-Aided-Design of an ion-optical transport and focusing system. (April 2001), College of Science, Al-Nharin University (Saddam University), Fatin A.J. Al-Mudarris ., (in English).
- 3- A computational optimization of an electron beam deflecting system. (June 2005), College of Science, Al-Nharin University, Uday A.H. Al-Obaidy ., (in English).
- 4- Computer-Aided-Design of focused ion beam for a lithography system. (June 2006), College of Science, Al-Nharin University, Fadhel A. Ali ., (in English).
- 5- Optical system design for homing head. (September 2006), College of Science, Al-Nharin University, Suha M.Kh. Al-Awsi ., (in English).
- 6- Computational investigation for Design of transmission electron microscope lenses. (February 2007) College of Education , Al-Mustansiryah University, Talib M. A. Al-Shafi'I , (in Arabic).
- 7- Frequency bandwidth improvement for microstrip antenna. (June 2007), College of Science, Al-Nharin University, Hind S.H. Al-Rawi ., (in English).
- 8- Study of the effect of the turnery additives on the electrical properties of Barium Titanat Compound. (July 2007), College of Science, Al-Nharin University, Athial M. Jasm, (in English).
- 9- Design, Construction and Characterization of Pesudo-Spark High Power Plasma Swich . (July 2014) College of Science, Al-Nharin University, Basma Hussain ., (in English).
- 10-Modeling, Fabrication and Investigation of Photonic Crystal Fiber (PCF) System Filled with Different Liquids for Optical Sensing. (July 2014) College of Science, Al-Nharin University, Hussain Thamir Salloom, (in English).
- 11-Chaotic Spiking and Control by Optoelectronic and Optical Feedback in Optical Network. (to be finished in 2017) College of Education, University of Mosul, Yonius T. Yonius, (in English).
- 12- AN EXPERIMENTAL AND ANALYTICAL INVESTIGATION FOR LASER TUBE BENDING PROCESS, AND ANALYSIS OF FACTORS AFFECTING PROCESSING SPEED AND THE BENDING ANGLE PRODUCED . member of Supervisory committee of Ph.D. Student Khalil Ibraheem Imhan, (Sptember 2017) Faculty of Engineering, University Putra Malaysia (UPM) (English).
- 13- Synchronization of chaos in semiconductor laser by means of optical loop mirror feedback. College of Science, Al-Nharin University, Ban Mudhfer Saaid, (To be finished in November 2018), (English).