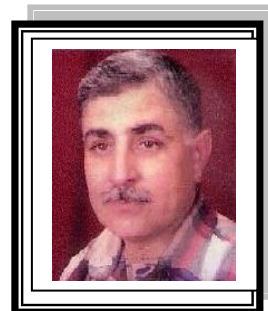


## Curriculum.Vitae



**Name:** Mohammed Taqi Hussein Mohammed Al -hakak

**Date of Birth:** Baghdad /1956 ( Passport No. A 9428385 )

**Religion:** Muslim

**Martial statues:** married

**No. of children:** 2

**Specialization:** Laser Spectroscopy

**Position:**

**Scientific Degree:** Ph.D. Physics

**Work Address:** University of Baghdad, College of Science,  
Department of Physics

**Work Phone:**

**Mobile:** 07708060482

**E-mail:** mohammedtake@gmail.com

### **First, Scientific Certification:**

Degree science	University	College	Date
B.Sc.	Baghdad – Iraq	College of Science	1978
M.Sc.	Baghdad- Iraq	College of Science	1982
Ph.D.	Madrid- Spain	College of Science	1994

Any other			
-----------	--	--	--

 **Second, Career:**

No.	Career	Workplace	From -To
1	Lecturer	College of Science	Before 2005
2	Ass. Prof.	College of Science	After 2005
3	Professor	College of Science	2012

 **Third, University Teaching.**

No.	University	The (Institute / College)	From –To
1	Baghdad	College of Science	2005- till now
2	Al-Mustansiriya Univ.	College of Science	1994-2005
3	Al-Nahrain Univ.	College of Science , College of Engineering	2005,2011 , 2013,2014

 **Fourth, Courses Which You Teach:**

No.	Department	Subject	Year
1	Physics	Electromagnetic theory (B.Sc)	2006
2	Physics	Laser design (Ph.D)	2006-2007

3	Physics	Laser Spectroscopy. (M.Sc) High power laser (Ph.D) Laser diffusion (Ph.D)	2006-2007
4	Biotechnology	General physics and Principles of lasers (B.Sc)	2008-2012
5	Physics	Atomic and Molecular Spectroscopy (M.Sc. , Ph.D)	2012-2013
6	Physics	Principles of Lasers (B.Sc)	2013-2014
7	Physics	Atomic and Molecular Spectroscopy (M.Sc. , Ph.D)	2014-2015
8	Physics	Principles of Lasers (B.Sc) Laser spectroscopy (Ph.D) Molecular Spectroscopy (Ph.D)	2014-2016

■ **Fifth, Thesis which was supervised by :**

No.	Thesis Title	Departme	Year
1	Generation of new wavelength by mixing dye laser , (M.Sc)	Physics	1998
2	Study the effect of some types of laser on the eye , (M.Sc)	Physics	1999
3	Construction system of semiconductors Laser GaAs type in the near infrared region , (M.Sc)	Physics	2000
4	Study of laser dye molecules in uniaxial system , (M.Sc)	Physics	2000
5	Study the effect of some saturable absorber on laser dyes , (M.Sc)	Physics	2000

6	The effect of oxygen on absorption and emission spectra for some organic laser dyes , (M.Sc)	Physics	2001
7	Spectral study of some laser dyes , (M.Sc)	Physics	2001
8	Spectroscopy study of Eosin dye laser and the quantum efficiency calculation , (M.Sc)	Physics	2001
9	Study of oil film thickness on water surface by Raman phenomena , (M.Sc)	Physics	2002
10	Spectroscopic study to some suspending in Iraqi rivers waters by Raman scattering Technique , (M.Sc)	Physics	2002
11	Spectroscopic properties measurement of polymer thin film doped by dye laser organic , (M.Sc)	Physics	2002
12	Spectroscopic study of laser dyes thin films , (M.Sc)	Physics	2002
13	Study and generation of infrasound wave by vibrational mode , (M.Sc)	Physics	2002
14	Study of the pressure effects on the interferometer fringes pattern , (M.Sc)	Physics	2002
15	Design and construction of a laser for measuring velocity of electrical motor , (M.Sc)	Physics	2003
16	Construction and parameters studying of a laboratory semiconductor laser range finder , (Ph.D)	Physics	2003
17	Design and calculation of laser detection system to limit the direction of radiation ,(M.Sc.)	Physics	2004
18	Theoretical investigation of the correlation energy the Li-atom (Ph.D)	Physics	2004
19	Study of spectroscopic and thermodynamic properties of some Hydroxyl molecules , (M.Sc)	Physics	2004
20	Calculation of laser beam attenuation in the atmosphere , (M.Sc)	Physics	2004
21	Study of the effect of concentration and type of the solvent on the spectral properties of dye laser R110 , (M.Sc)	Physics	2005
22	Fundamental frequencies measurement of some nonlinear molecules by using quantum programs , (M.Sc)	Physics	2005
23	Study of potential energy for hydrogen fluoride molecule in ground and excited states , (M.Sc)	Physics	2005
24	Study of spectroscopic and thermodynamic properties of CO , CO <sub>2</sub> molecules by using the semiempirical quantum , methods , (M.Sc)	Physics	2005
25	Spectroscopic study and quantity to compare the action of an infusion some of natural herbal and infusion on blood Glucose inverto , (M.Sc)	Physics	2005
26	Estimation of infrared spectrum for formaldehyde using semiempirical quantum programs , (M.Sc)	Physics	2005
27	Movable targets scanning by laser , (M.Sc)	Physics	2005

28	Study the spectroscopic and thermodynamic properties of semiconductor halogen ( $\text{Se}_2\text{F}_2$ ) and ( $\text{Se}_2\text{Cl}_2$ ) by using semi-empirical quantum mechanic , (M.Sc)	Physics	2006
29	Spectroscopic and thermodynamic properties of formic ( $\text{H}_2\text{CO}_2$ ) calculation , (M.Sc)	Physics	2006
30	Theoretical and experimental study of electronic structure of phthalocyanine metal free and zinc – plathalocyanine as a GaS sensor , (Ph.D)	Physics	2006
31	Study of spectral and thermal properties of some halogenated semiconductors,(M.Sc.)	Physics	2007
32	Study the spectroscopic and thermodynamic properties of methan, (M.Sc.)	Physics	2008
33	Spectroscopic and structural study of copper phthalocyanine (CuPc) , (Ph.D)	Physics	2008
34	Study of spectroscopic and thermodynamic properties of Germanium semiconductors treated by Halogen, (M.Sc.)	Physics	2008
35	Study of spectroscopic and thermodynamic properties of some indium – chlorine molecules by semi-empirical methods (M.Sc.)	Physics	2008
36	Study the effect of concentration polarity solvents on some properties of spectroscopy for laser passive Q switching type (Dotcl) , (M.Sc)	Physics	2008
37	Study of spectro properties of coumarin 2 pigment doped with polymer film PMMA , (M.Sc)	Physics	2008
38	Calculation energy level of semiconductor PbS using quantum mechanics semiempirical method , (M.Sc)	Physics	2009
39	A study of the effect of the solvent and concentration on the Absorption and the fluorescence spectrum of coumarin 2 Dye laser, (M.Sc)	Physics	2009
40	Study of spectroscopic and thermal properties for molecules silicon Halogen by using the semiempirical quantum programs, (M.Sc)	Physics	2009
41	Study the quantum efficiency and radiative life-time of polymer PMMA doped with C47 Dye laser, (M.Sc)	Physics	2010
42	Study of the effect of concentration on the quantum efficiency of copper phthalocyanine dye (CuPc) , (M.Sc)	Physics	2010
43	Spectral study of polymeric R110 thin film, (M.Sc)	Physics	2010
44	Spectral and structural studies of cobalt – phthalocyanine (CoPc) (Ph.D)	Physics	2010
45	Study of the effect on underwater laser communications , (Ph.D)	Physics	2010
46	Study the electronic properties of CdTe nanostructure, (M.Sc)	Physics	2013

47	Ab-initio calculation method of electronic structure of $\text{In}_x\text{Ga}_{1-x}\text{As}$ nanocrystal,(Ph.D)	Physics	2013
48	Ab-initio study the electronic structure of $\text{In}_x\text{Ga}_{1-x}\text{P}$ nanocrystals , (Ph.D)	Physics	2013
49	Preparation and characterization of NiPc/Si organic solar cell (ph.D)	Physics	2013
50	Theoretical and experimental study of CdSe thin film for solar cell applications , (Ph.D)	Physics	2014
51	Structural , Optical and electrical physics properties of CoPc organic semiconductor thin films (M.Sc.)	Physics	2014
52	Size variation of GaAs nanocrystals properties using Diamondoids structure (Ph.D.)	Physics	2015
53	Study the size variation of $\text{In}_{1-x}\text{Al}_x\text{P}$ nanocrystal alloying composition , using density functional theory (Ph.D.)	Physics	2015
54	Cobalt Phthalocyanine humidity sensor prepared by drop casting(MSc)	Physics	2015
55	High performance Organic Semiconductor (CuPc) Effect Transistor(PhD)	Physics	2016
56	IR- Raman spectroscopic study of BP diamondoids structure using Density Functional Theory(PhD)	Physics	2016
57	Surface and Electronics properties of $\text{Cd Se}_{1-x}\text{Te}_x$ using Density Functional Theory(PhD)	Physics	2016
58	Study the Electronic properties of $\text{Al As}_x\text{P}_{1-x}$ nanocrystal alloying composition using Density Functional Theory(PhD)	Physics	2016
59	The study of electronic properties, IR and Raman spectrum for $\text{Gax Al}_{1-x}\text{N}$ wurtzoid nanostructure using DFT (PhD)	Physics	2018
60	Assessment of solar energy potential for photovoltaic systems application in Iraq (PhD)	Physics	2018
61	High resolution laser spectroscopy for assignment of kidney stone (MSc)	Physics	2018
62	Study the effect of hydrogenate ZnS wurtzoids nanostructure properties using density functional theory	Physics	2018
63	Donor –accepter organic solar cell prepared pulsed laser deposition	Physics	2018
63	Study of all photonic non-linear optical device of organic semiconductor thin film	Physics	2019
64	Study of the stability ,electronic and vibrational properties of Chalcogenide wurtzoids molecules and nanostructure via density functional theory	Physics	2019



■ **Sixth, Conferences which you participated:**

No.	Conferences Title	Year	Place	Type of Participation
1	College on lasers atomic and molecular physics	1985	Italy -Teriesta (ICTP-center)	Participant
2	24 Reunion Bienal real sciedod espana de quimica	1992	Spain Malaga	Poster
3	Work shop on laser and application research	2006	Syria Damascus	Poster
4	Work shop on laser research and application	2008	Syria Damascus	Poster
5	International Conference on Energy, Environment and Applied Sciences (ICEEAS)	2016	Iraq-Erbil (Salah Aldin) Unversity & Ishac Univ,	Keynote speaker

■ **Seventh, Scientific Activities:**

Within the College	Outside the College
Member in examination committee for Physics department / College of Science / 2005	
Member of committee in the first conference in nanotechnology / College of Science / 2009	
Member in examination committee for Physics department / College of Science /2014	

■ Eighth, Research Projects in The Felid of Specialization to

The Environment and Society or the Development of Education:

No.	Research Title	Place of Publication	Year
1	Single pulse two – photon laser assisted reduction of benzophenone by triethylamine to form excited benzophenone ketyl radical	Laser Chem. Vol.15 PP.13-46 (Elsevier)	1994
2	MNDO/pm3 theoretical study of polymerization initiators: application to benzophenol-ketyl radical	J. Molecular structure ( Theochem. )Vol. 335, PP.205-213 (Elsevier)	1995
3	Energy transfer donor to acceptor of dye mixture	Al-Mustansiriya , J. Sci. , Vol.9, No.3	1998
4	Passive mode locking of CW dye laser	Al-Mustansiriya , J. Sci. , Vol.9, No.3	1998
5	Generation of new wavelength by mixing laser dye	Basrah J. science , A Vol.17 , no.2	1999
6	Sodium hallow cathode of laser optogalvanic	J. of Al-Rafidain univ. college for sciences	2000
7	Effect of lasers ultraviolet and visible on the lens and cornea of the eye	J. of Al-Rafidain univ. college for sciences	2000
8	Study the effect of some saturable absorber on laser dyes	J. Coll. Of Education , No.6 Al-Mustansiriya	2000



9	Design of copper vapor laser	J. of Coll. Educ. , Vol.2 Al-Mustansiriya	2001
10	Selective excitation with induced electric field effect of sodium atom	J. of Coll. Educ. , Vol.2 Al-Mustansiriya	2001
11	Electrical properties of thin titanium (Ti) films	J. of Coll. Educ. , Vol.1 Al-Mustansiriya	2001
12	The aquarium impurities of the water river by Raman spectroscopy	J. of Coll. Educ. , Vol.1 Al-Mustansiriya	2002
13	Oil film investigation on natural water by Raman spectroscopy	J. of the college of education , No.2 ,Al-Mustansiriya	2003
14	Energy level computation MNDO/PM3 of Hydroxy molecules	J. of the college of education , No.4 , Al-Mustansiriya	2004
15	The study of spectroscopic properties of polymers thin film doped by organic dye laser	J. of the college of education , No.1, Al-Mustansiriya	2005

16	Spectroscopic and structural study of copper phthalocyanine (CuPc)	Iraqi J. of Physics	2008
17	Study of spectral and thermal properties of selenium diatomic halides by Semi-empirical treatment	Um-Salama science journal , Vol5(2)	2008
18	Theoretical IR spectroscopic study of copper phthalocyanine (CuPc) compare with Phthalocyanine	The regional conference of Eng. Sci. , Vol.11 , No.2	2008
19	Detection of rubidium (Rb85, Rb87) ionized by ultra- violet light	Eng. and Tech. Journal , Vol.27 , No.13	2009
20	TE -N <sub>2</sub> laser by using low inductance capacitor	Nahrain Univ. , coll. Of Eng. , J. Vol.12 , No.1	2009
21	Night vision monitor for IR laser spot size identification	Iraqi J. of physics , Vol.8 , No.12	2010
22	Study B - phase Zn-phthalocyanine nanostructure by high accuracy preparation with sublimation method	Internal J. of science and Advances technology , Vol.1 , No.7	2011
23	Supersonic sodium atomic beam hyperfine structure measurement orthogonally with dye laser R6G	Indian J. of science and technology , Vol.4 , No.7	2011
24	Spectroscopic properties study of Coumarine dye doped polymethyl Meth crystal	Baghdad Science Journal , Vol.8(2)	2011
25	Study of the electronic structure of Indium Gallium Phosphide In <sub>0.5</sub> Ga <sub>0.5</sub> P nanocrystals	Iraqi Journal of Physics., Vol.10 , No.19	2012
26	Nano-Scale core effects on electronic structure properties of gallium arsenide	Iraqi Journal of Physics., Vol.10 , No.17	2012
27	Electronic Structure of Gallium Phosphide Nanocrystals Core and (001)-(1× 1) Oxidized Surface	Advances in Materials Physics and Chemistry 2, 267-274	2012

28	Three- photon absorption in ZnO film using ultra short pulse laser	Journal of modern physics , 3, 856-864	2012
29	First principle study of electronic nanoscale structure of $\text{In}_x\text{Ga}_{1-x}\text{P}$ with variable size, shape and alloying percentage	Indian J. of Physics , Received: 29 March 2013 / Accepted: 11 June	2013
30	Electronic structure of $\text{In}_x\text{Ga}_{1-x}\text{As}$ nanocrystals alloy using Ab-initio Density functional theory calculation coupled with LUC method	International Journal of Application or Innovation in engineering & Management (IJAIEEM) , Volume 2, Issue 5	2013
31	Study the electronic properties of core - oxidization CdSe nanocrystals	International Journal of Application or Innovation in engineering & Management (IJAIEEM) , Volume 2, Issue 9	2013
32	Structural and optical properties of cadmium Telluride CdTe thin film by evaporation technique	International Journal of Application or Innovation in engineering & Management (IJAIEEM) , Volume 2, Issue 5	2013
33	Ab-initio – RHF methods calculation to study the fundamental frequency of benzophenone ( $\text{C}_6\text{H}_5\text{-Co-C}_6\text{H}_5$ )	Int. J. Thin film Sci. Tech. 2 No.3	2013
34	Structural and surface morphology analysis of nickel phthalocyanine thin film	Advance in materials physics and Chemistry , 3	2013
35	Study on the Uv-visible of Ni-phthalocyanine thin film optical properties	Int. J. Thin film Sci. Tech. 1 No.2	2013

36	Ab-initio Density Functional Theory Electronic Structure of core - oxidization CdTe nanocrystals	International Journal of Application or Innovation in engineering & Management (IJAIEM) , Volume 2, Issue 4	2013
37	Study the optical properties of CdSe nanocrystals with different Se concentration	IJEIT , Volume 3, Issue 11	2014
38	Density functional theory study of InP quantum dot and oxidized surface	International Journal of Application or Innovation in engineering & Management (IJAIEM) , Volume 2, Issue 9	2014
39	Ab-initio structural and vibrational properties of GaAs diamonded and nanocrystals	AIP Advance 4,127119 (Thomson Reuter)	2014
40	Zinc-Blend Cadmium Colloidal Nanoparticles preparation by chemical reaction	International Journal of Thermal Technologies ISSN 2277-4117	2014
41	Thin film Optical properties of Cobalt phthalocyanine	IJR, ISSN 2250-1991	2014
42	Size variation GaAs nanocrystals properties using diamonded structures	International journal of Advance industrial Engineering , ISSN2320-5539 V01.2 , no.4	2014
43	Study the effect of annealing temperature on the structural , morphology and electrical properties CoPc thin film	IJIET , ISSN 2277-4106	2014

44	Study the electronic structure of $\text{In}_{1-x}\text{Al}_x\text{P}$ with variable concentration of Aluminum using density functional theory	International Journal of Thermal Technologies ISSN 2277-4117	2015
45	Capacitive-Resistive Measurements of Cobalt-Phthalocyanine Organic Humidity Sensors	PHOTONIC SENSORS Vol.5,No.3,257-262 (Springer)	2015
46	Study the High performance of Organic semiconductor CuPc Field Effect Transistor	International Journal of Current Engineering and Technology Vol. 5, No.3, ISSN. 2347-5161	2015
47	Design and construction of organic semiconductor (Cobalt-Phthalocyanine) humidity sensor as a function of capacitance, resistance and frequency	Patent No. of patent:4470 G01N27/048	2015
48	IR- Raman spectroscopic properties of Boron Phosphide using density functional theory	Photonic spectra (Thomson Reuter)	2016
49	Structural and Surface Morphology Analysis of Copper Phthalocyanine Thin Film Prepared by Pulsed Laser Deposition and Thermal Evaporation Techniques	Advances in Materials Physics and Chemistry Vol. 6, PP. 85-97	2016
50	Organic field-Effect Transistor of Copper Phthalocyanine prepared by pulsed- laser deposition	Journal of optoelectronic and photonics Vol. 7, No.8, ISSN 2313-1594	2016
51	STUDY THE ELECTRONIC PROPERTIES OF $\text{AlAs}_x\text{P}_{1-x}$ NANOCRYSTAL ALLOYING COMPOSITION, USING DENSITY FUNCTIONAL THEORY	Journal of Non-Oxide Glasses(Chalcogenide let), Vol. 8, No. 2 (Thomson Reuter)	2016

52	Ab-initio density functional theory core and concentration of $\text{AlAs}_x\text{P}_{1-x}$ nanocrystal alloying composition	International journal of scientific and engineering research Vol. 7,ISSN2229-5518	2016
52	Theoretical modeling of the electronic properties core and surface of $\text{CdSe}_{1-x}\text{Te}_x$ Chalcogenide nanocrystals via DFT calculation	Chalcogenide letters Vol. 13, No. 12 (Thomson Reuter)	2016
53	Effects of size and concentration on electronic structure of $\text{CdSe}_{1-x}\text{Te}_x$ semiconductor for optoelectronic applications	Optoelectronic communications Vol. 10, No. 11, ISSN. 2413-8916	2016
54	First principles calculations of electronic structure properties of $\text{CdSe}_{0.5}\text{Te}_{0.5}$ core and (001)-(1x1) slab geometry oxidized surface	International Journal of Current Engineering and Technology Vol. 6, No. 5, ISSN. 2277-4106	2016
55	Employment of density functional theory to study electronic properties of Boron Phosphide Diamonded structure for optoelectronic devices	Optoelectronic communications Vol. 10, No. 11, ISSN. 2413-8916	2016
56	Spectroscopic properties of Boron Phosphide diamonded structure using density functional theory	International Journal of Current Engineering and Technology Vol. 6, No. 3, ISSN. 2277-4114	2016
57	First principles calculation of $\text{AlAs}_x\text{P}_{1-x}$ ternary Nanocrystal alloying Composition	Iraqi Journal of Physics	2016
58	Design and construction of Organic Field Effect Transistor (Copper-Phthalocyanine) by Pulsed Laser Deposition	Patent No. of patent:4810 H01L51/0002 H01L29/0649	2017

59	Assessment of solar photovoltaic potential in Iraq	IOP journal of physics Vol.1032	2018
60	Stability electronic and vibrational properties of GaAlN wurtzoid molecules and nanocrystals : A DFT study	Vacuum (ELSEVIER) Vol.153,pp.17-23	2018
61	The short laser pulse to create micro-plasma for identification of kidney stone elements	Indian journal of natural sciences Vol.8,Issue47,ISSN:0976-0997	2018
62	Study of geometrical and electronic properties of ZnS wurtzoids via DFT	Chalcogenide Letters Vol.15,No.10,  (Thomson Reuter)	2018
63	Vibration Properties of ZnS nanostructure Wurtzoids: ADFT Study	IOP Conf. Series: Journal of Physics: Conf. Series 1178 (2019) 012015 (Scopus )	2019
64	Spectroscopic and structural properties of Zinc-Phthalocyanine prepared by pulsed laser deposition	IOP Conf. Series: Journal of Physics: Conf. Series 1178 (2019) 012031	2019
65	Study of the thickness effect on spectroscopic and structural properties of CuPc thin films prepared using Pulsed Laser Deposition	Revista AUS No.26-2, pp.108-112	2019
66	Investigation of Nickel Phthalocyanine thin films for solar cell ppplications	Advances in materials physics and chemistry , No.9, PP. 158-173	2019

67	Impact thickness on structural and electrical characterization of Nickel phthalocyanine thin films	Advances in materials physics and chemistry , No.9, PP. 123-132	2019
68	Study the optical and structural properties for thin film Zinc Oxide (ZnO) produced by pulsed laser deposition	Journal of university of Babylon for pure and Applied sciences , Vol. 27, No.4, PP. 223-229	2019
69	ZnS wurtzioids Nanosturcture	LAMBERT, International book market service Ltd., member of omniScriptum publishing Group	2019

### **Ninth, Membership:**

#### **➤ Tenth, Awards and Certificates of Appreciation:**

No.	Name of	Donor	Year
1	Certificates	The chief of Syria Damascus university	2006
2	Certificates	The chief of Syria Damascus university	2008
3	Certificates	The chief of Al-Mustansiriya university	2010
4	Certificates	The dean of College for Science	2013
5	Certificates	The chief of Baghdad university	2013
6	Certificates	The assist Chief of Baghdad university	2014
7	Certificates	The chief of Baghdad university	2014
8	Certificates	The assist Chief of Baghdad university	2014
9	Awards	Assist the Dean of College	2014



10	Certificates	Ministry of higher education and scientific	2014
11	Certificates	The chief of Baghdad university	2014
12	Awards	The assist of dean	2014
13	Certificates	The chief of Baghdad university	2015
14	Awards	The assist of Dean	2015
15	Certificates	The Chief of Baghdad university	2016
16	Certificates	The Chief of Baghdad university	2016
17	Certificates	The Chief of Baghdad university	2016
18	Certificates	The Chief of Baghdad university	2017
19	Certificates	The Chief of Baghdad university	2017
20	Certificates	The Chief of Baghdad university	2017
21	Certificates	The Chief of Baghdad university	2018
22	Certificates	The Chief of Baghdad university	2018
23	Certificates	The Chief of Baghdad university	2018
24	Certificates	The Chief of Baghdad university	2019
25	Certificates	The Chief of Baghdad university	2019

**■ Eleventh, Scientific literature:**

No.	Scientific Literature Title	Year of The Publication
1		
2		

■ **Twelfth, languages:**

- ✓ Arabic
- ✓ English
- ✓ Spanish

**\*Note: - Make a copy on CD.**

