



# FACULTY FULL NAME: Hassen Dakhlaoui

POSITION: Associate Professor

## Personal Data

Nationality | Tunisian

Department | Physics

Official UoD Email | [hbaldkhlaen@iau.edu.sa](mailto:hbaldkhlaen@iau.edu.sa)

Office Phone No. | 00966564585263

## Language Proficiency

Language	Read	Write	Speak
Arabic	Good	Good	Good
English	Good	Good	Good
French	Good	Good	Good

## Academic Qualifications (Beginning with the most recent)

Date	Academic Degree	Place of Issue	Address
11/02/2006	PhD in Theoretical Physics	Tunisia	Faculty of science of Tunisia
11/09/2002	Master	Tunisia	Faculty of science of Tunisia

## PhD, Master or Fellowship Research Title: (Academic Honors or Distinctions)

PhD	Theoretical Study of electronic properties of heterostructures based on diluted magnetic Semiconductors (GaMnAs/GaAs) quantum wells
Master	Theoretical Study of Heat equation in Pyroelectric sensor.

## Professional Record: (Beginning with the most recent)

Job Rank	Place and Address of Work			Date
Associate professor	College of science of Dammam	Imam Abdulrahman Bin Faisal University	2017-present	Associate professor



Assistant professor	College of science of Dammam	University of Dammam, Saudi Arabia	2012-2017	Assistant professor
Assistant professor	Faculty of Sciences Bizerte	University of Carthage, Tunisia	2004-2012	Assistant professor

## Scientific Achievements

### Published Refereed Scientific Researches

(In Chronological Order Beginning with the Most Recent)

#	Name of Investigator(s)	Research Title	Publisher and Date of Publication	Impact factor	DOI
[1]	Walid Belhadj, Hassen Dakhlaoui, Omar H Alsalmi, Fatih Ungan	Impacts of electric and magnetic fields on the optical and electronic characteristics of graphene-based multibarrier structure	Optical and Quantum Electronics 2023	2.4	<a href="https://link.springer.com/article/10.1007/s11082-023-05430-3">https://link.springer.com/article/10.1007/s11082-023-05430-3</a>
[2]	Hassen Dakhlaoui, Walid Belhadj, Haykel Elabidi, Fatih Ungan, Bryan M Wong	GaAs Quantum Dot Confined with a Woods–Saxon Potential: Role of Structural Parameters on Binding Energy and Optical Absorption.	Inorganics 2023	2.9	<a href="https://www.mdpi.com/2304-740/11/10/401">https://www.mdpi.com/2304-740/11/10/401</a>
[3]	Francis Segovia-Chaves, Herbert Vinck-Posada, Hassen Dakhlaoui	Optimization of the quality factor and sensitivity of one-dimensional photonic crystal methane sensor with cryptophane A cavity	Optik 2023	2.84	<a href="https://www.sciencedirect.com/science/article/abs/pii/S030402623007465">https://www.sciencedirect.com/science/article/abs/pii/S030402623007465</a>
[4]	Aysevil Salman Durmuslar, Hassen Dakhlaoui, Emre Bahadır Al, Fatih Ungan	Nonlinear optical properties of modified Möbius squared potential well: influence of electric and magnetic fields	Philosophical Magazine 2023	1.6	<a href="https://www.tandfonline.com/doi/abs/10.1080/14786435.2023.2256250">https://www.tandfonline.com/doi/abs/10.1080/14786435.2023.2256250</a>
[5]	Walid Belhadj, Omar H Alsalmi, Hassen Dakhlaoui, Francis Segovia-Chaves	Transmittance spectra of (YBa <sub>2</sub> Cu <sub>3</sub> O <sub>7-x</sub> /BaTiO <sub>3</sub> ) 1D photonic crystals: the role of GaAs and Al <sub>x</sub> Ga <sub>(1-x)</sub> As Semiconductors in the visible range	The European Physical Journal Plus 2023	3.758	<a href="https://link.springer.com/article/10.1140/ejpp/s13360-023-04180-1">https://link.springer.com/article/10.1140/ejpp/s13360-023-04180-1</a>



[6]	<b>Hassen Dakhlaoui, Walid Belhadj, Fatih Ungan, Najla S Al-Shameri</b>	<b>Linear and nonlinear optical properties in GaAs quantum well based on konwent-like potential: Effects of impurities and structural parameters</b>	<b>Physica E: Low-dimensional Systems and Nanostructures</b> 2023	3.369	<a href="https://www.sciencedirect.com/science/article/abs/pii/S1386947723001108">https://www.sciencedirect.com/science/article/abs/pii/S1386947723001108</a>
[7]	<b>Omar H Alsalmi, Hassen Dakhlaoui, Walid Belhadj, Fatih Ungan</b>	<b>Electronic Transmission and conductance oscillations in electrostatic multibarrier system based on graphene monolayer.</b>	<b>Physica Scripta</b> 2023	2.9	<a href="https://iopscience.iop.org/article/10.1088/1402-4896/acdb06/meta">https://iopscience.iop.org/article/10.1088/1402-4896/acdb06/meta</a>
[8]	<b>H Dakhlaoui, W Belhadj, M. O Musa, F Ungan</b>	<b>Binding energy, electronic states, and optical absorption in a staircase-like spherical quantum dot with hydrogenic impurity</b>	<b>The European Physical Journal Plus</b> 2023	3.758	<a href="https://link.springer.com/article/10.1140/ejpp/s13360-023-04044-8">https://link.springer.com/article/10.1140/ejpp/s13360-023-04044-8</a>
[9]	<b>A Turker Tuzemen, H Dakhlaoui, EB Al, F Ungan</b>	<b>The nonlinear optical properties of " 12-6" tuned GaAs/GaAlAs double quantum well under the external fields</b>	<b>The European Physical Journal Plus</b> 2023	3.758	<a href="https://link.springer.com/article/10.1140/ejpp/s13360-023-03795-8">https://link.springer.com/article/10.1140/ejpp/s13360-023-03795-8</a>
[10]	<b>H Dakhlaoui, W Belhadj, E Kasapoglu, F Ungan</b>	<b>Position-dependent-mass and laser field impact on the optical characteristics of Manning-like double quantum well</b>	<b>Physica E: Low-dimensional Systems and Nanostructures</b> 2023	3.369	<a href="https://www.sciencedirect.com/science/article/abs/pii/S1386947723000875">https://www.sciencedirect.com/science/article/abs/pii/S1386947723000875</a>
[11]	<b>H Dakhlaoui, W Belhadj, MO Musa, F Ungan</b>	<b>Electronic states and optical characteristics of GaAs Spherical quantum dot based on Konwent-like confining potential: Role of the hydrogenic impurity and structure parameters</b>	<b>Optik</b> 2023	2.84	<a href="https://doi.org/10.1016/j.jileo.2023.170684">https://doi.org/10.1016/j.jileo.2023.170684</a>
[12]	<b>H Dakhlaoui, W Belhadj, AS Durmuslar, F Ungan, A Abdelkader</b>	<b>Numerical study of optical absorption coefficients in Manning-like AlGaAs/GaAs double quantum wells: Effects of doped impurities</b>	<b>Physica E: Low-dimensional Systems and Nanostructures</b> 2023	3.369	<a href="https://doi.org/10.1016/j.physe.2022.115623">https://doi.org/10.1016/j.physe.2022.115623</a>
[13]	<b>A Turker Tuzemen, H Dakhlaoui, F Ungan</b>	<b>Effects of external fields on the nonlinear optical</b>	<b>Journal of Molecular Structure</b>	3.841	<a href="https://doi.org/10.1016/j.molst">https://doi.org/10.1016/j.molst</a>





		<b>GaMnAs/GaAs: Role of Temperature and Bias Voltage</b>			
[22]	<b>Hassen Dakhlaoui, JA Gil-Corrales, AL Morales, E Kasapoglu, A Radu, RL Restrepo, V Tulupenko, Juan A Vinasco, ME Mora-Ramos, CA Duque</b>	<b>Theoretical study of electronic and optical properties in doped quantum structures with Razavy confining potential: effects of external fields</b>	<b>Journal of Computational Electronics 2022</b>	<b>1.807</b>	<b><a href="https://link.springer.com/article/10.1007/s10825-022-01859-z">https://link.springer.com/article/10.1007/s10825-022-01859-z</a></b>
[23]	<b>Najla S Al-Shameri, Hassen Dakhlaoui</b>	<b>Numerical investigation of quantum tunneling time and spin-current density in GaAs/GaMnAs/GaAs barriers: Role of an applied bias voltage</b>	<b>Physica B 2022</b>	<b>2.988</b>	<b><a href="https://doi.org/10.1016/j.physb.2021.413555">https://doi.org/10.1016/j.physb.2021.413555</a></b>
[24]	<b>Walid Belhadj, Abdelmajid Timoumi, Hassen Dakhlaoui, Fahad Alhashmi Alamer</b>	<b>Design and Optimization of One-Dimensional TiO<sub>2</sub>/GO Photonic Crystal Structures for Enhanced Thermophotovoltaics</b>	<b>Coatings 2022</b>	<b>2.881</b>	<b><a href="https://doi.org/10.3390/coatings12020129">https://doi.org/10.3390/coatings12020129</a></b>
[25]	<b>I Altuntas, H Dakhlaoui, ME Mora-Ramos, F Ungan</b>	<b>Combined effects of electric, magnetic, and intense terahertz laser fields on the nonlinear optical properties in GaAs/GaAlAs quantum well with exponentially confinement potential</b>	<b>The European Physical Journal Plus 2021</b>	<b>3.758</b>	<b><a href="https://doi.org/10.1140/epjp/s13360-021-02180-7">https://doi.org/10.1140/epjp/s13360-021-02180-7</a></b>
[26]	<b>W Belhadj, N Ben Ali, H Dakhlaoui, OH Alsalmi, H Alsaif, A Torchani</b>	<b>Characterization of spectral features of cavity modes in one-dimensional graphene-based photonic crystal structures</b>	<b>The European Physical Journal B 2021</b>	<b>1.5</b>	<b><a href="https://doi.org/10.1140/epjb/s10051-021-00194-9">https://doi.org/10.1140/epjb/s10051-021-00194-9</a></b>
[27]	<b>A Turkoglu, H Dakhlaoui, ME Mora-Ramos, F Ungan</b>	<b>Optical properties of a quantum well with Razavy confinement potential: Role of applied external fields</b>	<b>Physica E: Low-dimensional Systems and Nanostructures 2021</b>	<b>3.382</b>	<b><a href="https://doi.org/10.1016/j.physe.2021.114919">https://doi.org/10.1016/j.physe.2021.114919</a></b>
[28]	<b>H Dakhlaoui, I Altuntas, ME Mora-Ramos, F Ungan</b>	<b>Numerical simulation of linear and nonlinear optical properties in heterostructure based on triple Gaussian quantum wells: effects of applied external fields and structural parameters</b>	<b>The European Physical Journal Plus 2021</b>	<b>3.758</b>	<b><a href="https://doi.org/10.1140/epjp/s13360-021-01907-w">https://doi.org/10.1140/epjp/s13360-021-01907-w</a></b>



[29]	Hassen Dakhlaoui, Shaffa Almansour, Walid Belhadj, Bryan M Wong	Modulating the conductance in graphene nanoribbons with multi-barriers under an applied voltage	Results in Physics 2021	4.565	<a href="https://doi.org/10.1016/j.rinp.2021.104505">https://doi.org/10.1016/j.rinp.2021.104505</a>
[30]	Hassen Dakhlaoui, Walid Belhadj, Bryan M Wong	Quantum tunneling mechanisms in monolayer graphene modulated by multiple electrostatic barriers	Results in Physics 2021	4.565	<a href="https://doi.org/10.1016/j.rinp.2021.104403">https://doi.org/10.1016/j.rinp.2021.104403</a>
[31]	Hassen Dakhlaoui, JA Vinasco, C. A Duque	External fields controlling the nonlinear optical properties of quantum cascade laser based on staircase-like quantum wells	Superlattices and Microstructures 2021	2.658	<a href="https://doi.org/10.1016/j.spmi.2021.106885">https://doi.org/10.1016/j.spmi.2021.106885</a>
[32]	Hassen Dakhlaoui	Magnetic Field and Hydrostatic Pressure Effects on Electron Transport in Heterostructure Based on InAs/GaAs Triple Barriers with Dresselhaus Interaction	Arabian Journal for Science and Engineering 2021	2.807	<a href="https://doi.org/10.1007/s13369-020-05168-0">https://doi.org/10.1007/s13369-020-05168-0</a>
[33]	A Turkoglu, H Dakhlaoui, A Salman Durmuslar, ME Mora-Ramos, F Ungan.	Nonlinear optical properties of a quantum well with inversely quadratic Hellman potential	The European Physical Journal B 2021	1.398	<a href="https://doi.org/10.1140/epjb/s10051-021-00129-4">https://doi.org/10.1140/epjb/s10051-021-00129-4</a>
[34]	H Dakhlaoui, F Ungan, JC Martínez-Orozco, ME Mora-Ramos	Theoretical investigation of linear and nonlinear optical properties in an heterostructure based on triple parabolic barriers: Effects of external fields.	Physica B 2021	1.9	<a href="https://doi.org/10.1016/j.physb.2020.412782">https://doi.org/10.1016/j.physb.2020.412782</a>
[35]	Hassen Dakhlaoui, Mouna Nefzi, Najla S Al-Shameri, Alanoud Al Suwaidan, Hadeel Elmobkey, Shaffa Almansour, Ibtessam Alnaim	Magnetic field effect on spin-polarized transport in asymmetric multibarrier based on InAs/GaAs/GaSb systems	Physica B 2020	1.9	<a href="https://doi.org/10.1016/j.physb.2020.412403">https://doi.org/10.1016/j.physb.2020.412403</a>
[36]	Hassen Dakhlaoui, Mouna Nefzi, Najla S Al-Shameri, Alanoud Al Suwaidan, Hadeel Elmobkey, Shaffa Almansour, Ibtessam Alnaim	Spin-polarized transmission across heterostructure based on an InAs/GaSb/InGaAs system: Effect of accelerating quantum wells	Chemical Physics Letters  2020	2.029	<a href="https://doi.org/10.1016/j.cplett.2020.137866">https://doi.org/10.1016/j.cplett.2020.137866</a>
[37]	NS Al-Shameri, H Dakhlaoui, S Almansour, I. Alnaim	Spin-Dependent Tunneling of Holes in Heterostructures Based on GaMnAs Semiconductor:	Journal of Superconductivity and Novel Magnetism	1.2	<a href="https://doi.org/10.1007/s10948-020-05463-9">https://doi.org/10.1007/s10948-020-05463-9</a>



		<b>Effects of Temperature and Quantum Size</b>	<b>2020</b>		
[38]	H. Dakhlaoui, M. Nefzi	<b>Tuning the linear and nonlinear optical properties in double and triple <math>\delta</math>-doped GaAs semiconductor: Impact of electric and magnetic fields</b>	<b>Superlattices and microstructures journal 2019</b>	2.12	<a href="https://doi.org/10.1016/j.spmi.2019.106292">https://doi.org/10.1016/j.spmi.2019.106292</a>
[39]	H. Dakhlaoui, M. Nefzi	<b>Simultaneous effect of impurities, hydrostatic pressure, and applied potential on the optical absorptions in a GaAs field-effect transistor</b>	<b>Results in Physics 2019</b>	2.600	<a href="https://doi.org/10.1016/j.rinp.2019.102618">https://doi.org/10.1016/j.rinp.2019.102618</a>
[40]	H Dakhlaoui, S Almansour	<b>Modeling of the spin currents in resonant tunneling diodes based on ferromagnetic semiconductor spacers</b>	<b>Journal of Superconductivity and Novel Magnetism 2019</b>	1.24	<a href="https://doi.org/10.1007/s10948-018-4880-8">https://doi.org/10.1007/s10948-018-4880-8</a>
[41]	H. Dakhlaoui	<b>Tunability of the optical absorption and refractive index changes in step-like and parabolic quantum wells under external electric field</b>	<b>Optik 2018</b>	2..84	<a href="https://doi.org/10.1016/j.ijleo.2018.04.109">https://doi.org/10.1016/j.ijleo.2018.04.109</a>
[42]	H. Dakhlaoui	<b>Enhancement of the optical absorption in MgZnO/ZnO quantum well under external electric field</b>	<b>Optik 2018</b>	2.84	<a href="https://doi.org/10.1016/j.ijleo.2017.12.107">https://doi.org/10.1016/j.ijleo.2017.12.107</a>
[43]	H. Dakhlaoui and M. Nefzi	<b>Quantum size and magnesium composition effects on the optical absorption in the <math>Mg_xZn(1-x)O/ZnO</math> quantum well</b>	<b>Chemical Physics Letters 2018</b>	2.029	<a href="https://doi.org/10.1016/j.cplett.2018.01.010">https://doi.org/10.1016/j.cplett.2018.01.010</a>
[44]	H Dakhlaoui	<b>The effects of doping layer location on the electronic and optical properties of GaN step quantum well</b>	<b>Superlattices and microstructures journal 2016</b>	2.12	<a href="https://doi.org/10.1016/j.spmi.2016.07.018">https://doi.org/10.1016/j.spmi.2016.07.018</a>
[45]	H Dakhlaoui, S Almansour	<b>Piezoelectric polarization and quantum size effects on the vertical transport in AlGaIn/GaN resonant tunneling diodes</b>	<b>Chinese Physics B 2016</b>	1.652	<a href="https://doi.org/10.1088/1674-1056/25/6/067304">10.1088/1674-1056/25/6/067304</a>



[46]	A Shaffa, Dakhlaoui Hassen, A Emame	Effect of Si $\delta$ -doping on the linear and nonlinear optical absorptions and refractive index changes in InAlN/GaN Single Quantum Wells	Chinese Physics Letters 2016	2.293	10.1088/0256-307X/33/2/027301
[47]	Hassen Dakhlaoui	Linear and nonlinear optical absorption coefficients and refractive index changes in GaN/Al <sub>x</sub> Ga <sub>(1-x)</sub> N double quantum wells operating at 1.55 $\mu$ m	Journal of Applied Physics 2015	2.877	<a href="https://doi.org/10.1063/1.4916752">https://doi.org/10.1063/1.4916752</a>
[48]	H Dakhlaoui, S Almansour, E Algrafy	Effect of Si $\delta$ -doped layer position on optical absorption in GaAs quantum well under hydrostatic pressure	Superlattices and Microstructures 2015	2.12	<a href="https://doi.org/10.1016/j.spmi.2014.11.008">https://doi.org/10.1016/j.spmi.2014.11.008</a>

### Completed Research Projects

#	Name of Investigator(s) (Supported by)	Research Title	Beneficiary institute	Funding source	Date
1	Hassen Dakhlaoui (Principal investigator) Shaffa Almansour	Piezoelectric effect on the current density in resonant tunneling diodes GaN/Al <sub>x</sub> Ga <sub>(1-x)</sub> N	College of science of Dammam	Abdulrahman Bin Faisal University 2014-037	2014
2	Hassen Dakhlaoui (Principal investigator) Shaffa Almansour	Theoretical study of temperature effect on the current density in cubic resonant tunneling diodes using a non-equilibrium Green's functions formalism	College of science of Dammam	Abdulrahman Bin Faisal University 2015-134	2015
3	Hassen Dakhlaoui (principal investigator), Mouna Nefzi, Najla S Al-	Theoretical study of the spin-polarization in InAs/GaSb/GaAs semiconductor multilayers Under the Rashba and	College of science of Dammam	Abdulrahman Bin Faisal University 2020-136-BASRC	2020





	<b>Shameri, Alanoud Al Suwaidan, Hadeel Elmobkey, Shaffa Almansour, Ibtessam Alnaim</b>	<b>Dresselhaus interactions: Spin-Field-Effect-Transistor.(SFET) and its application</b>			
4	<b>Hassen Dakhlaoui and Walid Belhadj</b>	<b>Theoretical study of electron transport in heterostructures based on MoS<sub>2</sub>-Graphene multilayers: Concept and application of graphene-based solar cell.</b>	<b>Faculty of Applied Science, Umm AL-Qura University</b>	<b>Deanship of Scientific Research at Umm Al-Qura University project number: IFP22UQU4331235DSR177</b>	<b>2022</b>
5	<b>Hassen Dakhlaoui and Walid Belhadj</b>	<b>Electronic and optical properties of Laser sources Based on semiconductor Quantum dots used in Medical applications</b>	<b>Faculty of Applied Science, Umm AL-Qura University</b>	<b>Deanship of Scientific Research at Umm Al-Qura University Project number : (22UQU4331235DSR01).</b>	<b>2022</b>

### Supervision of Master and/or PhD Thesis

#	Degree Type	Title	Institution	Date
1	<b>Master in physics</b>	<b>Study of resonant Tunnelling, Structural, optical, and electrical properties of Al GaAs/GaAs and ZnO / ZnMgO heterostructures for optoelectrical applications</b>	<b>College of science of Dammam- Saudi Arabia</b>	<b>2017-2018 Completed</b>
2	<b>Master in physics</b>	<b>Theoretical Study of electronic properties of Resonant tunneling diodes based GaN/ALGaN</b>	<b>College of science of Dammam- Saudi Arabia</b>	<b>2018-2019 Completed</b>
3	<b>PhD Thesis</b>	<b>Simulation of holes Transport in heterostructures based on magnetic semiconductors GaAs/GaMnAs Multi-Barriers</b>	<b>College of science of Dammam- Saudi Arabia</b>	<b>2019-2022 Completed</b>



4	<b>PhD Thesis</b>	<b>Photothermal, Photoluminescence and Electrical investigation of photodetectors based on GaAs/AlGaAs multi-quantum wells</b>	<b>College of science of Dammam- Saudi Arabia</b>	<b>2019-2022 Completed</b>
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## TECHNICAL SKILLS

**Programming languages:** FORTRAN, Matlab, C, C++.

**Software package:** Origin, Word, Excel, FrontPage, PowerPoint, Mathematica, Mathcad, Maple, RSoft & Lumerical softwares (For Photonic Device & Optical Communications System Design).

## UNIVERSITY ACTIVITIES

**Member in the following committees:**

1. Curriculum Committee (member).
2. Graduate Studies Committee (coordinator).
3. Academic Accreditation Committee (member).

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Last Update

12/14/2023