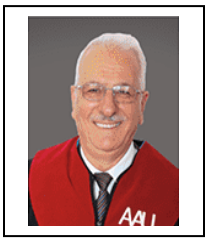
التاريخ 15-9-2022



رشاد ابراهيم بدران

المعلومات الشخصية

المسمى الوظيفي: عضو هيئة تدريس

الرتبة الأكاديمية: استاذ دكتور

تاريخ الولادة ومكانها: 1955-العراق

الجنسية: الاردنية: ألاردنية

العنوان: الحبيبة-قرب مسبح تولين- ش. الاصايل 18

رقم الهاتف:0795054410

البريد الإلكتروني:r.badran@aau.edu.jo

المؤهلات العلمية

الدرجة	التخصص الدقيق	مدة الدراسة (من-الى)	الجامعة	البلد
بكالوريوس	الفيزياء	1973-1978	كلية العلوم-جامعة البصرة	العراق
ماجستير	الفيزياء	1982-1986	كلية العلوم-جامعة الكويت	الكويت
دكتوراة	الفيزياء	1987 – 1991	جامعة نوتنجهام	المملكة المنحدة

الخبرات الاكاديمية والبحثية

مدة العمل	الرتبة	المؤسسة	القسم/الكلية	البلد

	الأكاديمية			
سبتمبر 1979-سبتمبر 1982	مساعد باحث وتدريس	جامعة البصرة	كلية العلوم	العراق
اوكتوبر 1982 – مارس1986	مساعد تدريس اثناء منحة دراسة الماجستير	جامعة الكويت	كلية العلوم	الكويت
مارس 1986- اغسطس 1987	مساعد محاضر وباحث	جامعة الكويت	قسم الفيزياء	الكويت
اوكتوبر 1990- حزيران 1991	مساعد تدريس	جامعة نوتنجهام	قسم الفيزياء	المملكة المتحدة
يناير 1993- اغسطس 1993:	محاضرغير متفرغ	الجامعة الاردنية	قسم الفيزياء	الاردن
سبتمبر 1993- اعسطس 1995	استاذ مساعد	جامعة البنرا (جامعة البنات الاردنية سابقاً)	كلية العلوم	الاردن
سبتمبر 1995- اوكتوبر 2003	اسناذ مساعد	الجامعة الهاشمية	قسم الفيزياء	الاردن
حزيران 1999- سبتمبر 1999	مساعد باحث زائر	جامعة دندي	مركز EPI	اسكتلندة- المملكة المتحدة
حزيران 2000- سبتمبر 2000:	مساعد باحث زائر	جامعة دندي	مركز EPI	اسكتلندة- المملكة المتحدة
حزيران 2001- سبتمبر 2001	مساعد باحث زائر	جامعة دندي	مركز EPI	اسكتلندة- المملكة المتحدة
حزيران 2003- سبتمبر 2003	مساعد باحث زائر ومساعد باحث زائر	يوليش و في جامعة اولدينبيرك	معهد يوليش للابحاث- يوليش+جامعة اولدينبيرك	المانيا
نوفمبر 2003 – اغسطس 2006	أستاذ مشارك	الجامعة الهاشمية	كلية العلوم, قسم الفيزياء	الاردن
سبتمبر 2006 – اغسطس 2010:	أستاذ مشارك	جامعة الملك عبدالعزيز	قسم الفيزياء – كلية العلوم	المملكة العربية السعودية
سبتمبر 2010- نوفمبر 2010	أستاذ مشارك		قسم الفيزياء – كلية العلوم	الاردن

الجامعة الهاشمية

اوكتوبر 2011- اغسطس 2012	استاذ دكتور	الجامعة الاردنية الالمانية	كلية هندسة لمصادر الطبيعية	الاردن
اوكتوبر 2011-2021	استاذ دكتور	الجامعة الهاشمية	قسم الفيزياء – كلية العلوم	الاردن
سبتمبر 2017- سبتمبر 2019	عميد كلية	الجامعة الهاشمية	كلية العلوم	الاردن
سبتمبر 2019- سبتمبر 2022	عضو مجلس امناء	جامعة البتراء	جامعة البتراء	الاردن
سبتمبر 2019- سبتمبر 2020	عميد كلية	الجامعة الهاشمية	كلية العلوم	الاردن
سبتمبر 2022- الان	عميد كلية	جامعة عمان العربية	كلية الاداب والعلوم	الاردن
سبتمبر 2022- الان	عضو مجلس امناء	جامعة البتراء	جامعة البتراء	الاردن

المنشورات والمؤلفات

Author/s	Title	Journal	Vol./No.	Publication Date
R.I. Badran	Analytical solution of phototransport problem under the presence of a small-signal photocurrent based on method of weighted residuals	Results in Physics https://doi.org/10.1016/j.rinp.2020.103079	17, 103079	2020
Y. Al-Hadeethi, **R.I. Badran**, A. Umar, S.H. Al-Heniti, B.M. Raffah, & S. Al-Zahrani.	Electrical properties of Ga-doped ZnO nanowires/Si heterojunction diode	Materials Express https://doi.org/10.1166/mex.2020.1725	10, 794-801	2020

Y. Al-Hadeethi, A .Umar, S.H. Al-Heniti, B.M. Raffah, and **R.I. Badran**	ZnO Nanowalls/Si Substrate Heterojunction Assembly: Morphological, Optical and Electrical Properties.	Journal of Nanoelectronics and Optoelectronics https://doi.org/10.1166/jno.2020.2786	5, 586-591	2020
R.I. Badran, Y. Al-Hadeethi, A. Umar, S.H. Al-Heniti, B. M. Raffah, S. Ansari, and A. Jilani.	Temperature-dependent heterojunction device characteristics of n-ZnO nanorods/p-Si substrate assembly	Materials Express https://doi.org/10.1166/mex.2020.1595	10, 29-36.	2020
Y. Al-Hadeethi, **R.I. Badran**, A .Umar, S.H. Al-Heniti, B.M. Raffah, and A.M. Alharbi.	Growth of n-Ga doped ZnO nanowires interconnected with disks over p-Si substrate and their heterojunction diode application	Materials Express https://doi.org/10.1166/mex.2020.1594	10, 21-28	2020
H. Algarni, **R. I. Badran**, M. A. Khan, F.J. Hassen, S. H. Kim, and A. Umar.	Fabrication and Temperature Dependent Electrical Characterization of n-ZnO Nanowires/p-Si Substrate Heterojunction Diodes	Journal of Nanoelectronics and Optoelectronics DOI: 10.1166/jno.2017.2140	12, 1162–1166	2017
S. H. Kim, **R. I. Badran**, Ahmad Umar	Fabrication of ZnO Nanorods Based p–n Heterojunction Diodes and Their Electrical Behavior with Temperature	Journal of Nanoelectronics and Optoelectronics https://doi:10.1166/jno.2017.2134	12, 731–735,	2017
R. I. Badran, A. I. Istaiti,	Regge Pole Analysis of Elastic Scattering of α Particles by Even Isotopes of Ni Target at	International Journal of Modern Physics	24, 1550082-23	2015

W. N. Mashaqbeh, I. H. Al-Lehyani	Incident Energies Above Coulomb Barrier	http://dx.doi.org/10.1142/S0218301315500822		
S. H. Al-Heniti, **R. I. Badran** and A. Umar	Temperature-Dependent Electrical Properties of Sn-Doped ZnO Nanowires	Science of Advanced Materials http://dx.doi.org/10.1166/sam.2015.2708	7, 2684-2691	2015
R. I. Badran and D. Al-Masri	Exploring Diffractive Features of Elastic Scattering of ^{6}Li on Different Nuclei at Different Energies	Canadian Journal of Physics http://dx.doi.org/10.1139/cjp-2012-0466	91, 355-364	2013
A. Umar, M. S. Akhtar, **R. I. Badran,** M. Abaker, S. H. Kim, A. Al-Hajry, S. Baskoutas	Electrical properties of solution processed p-SnS nanosheet/n-TiO_2 heterostructure assembly	Applied Physics Letters **http://dx.doi.org/10.1063/1.4819838**	103, 101602	2013
R. I. Badran, A. Umar, S. Alheniti, T. Al-Harbi	Synthesis and characterization of hexagonal zinc oxide nanorods on silicon for the fabrication of p-Si/ n-ZnO heterojunction devices	Journal of alloys and compounds **http://dx.doi.org/10.1016/jallcom.2010.08.048**	508, 375-379	2010
R. I. Badran, F. S. Al-Hazmi, S. Al-Heniti, A. Al-	A study of optical properti of hydrogenated microcrystalline silicon films prepared	Vacuum	83, 1023-1030	2009

Ghamdi, J. Li and S. Xiong	by plasma enhanced chemical vapor deposition technique at different conditions of excited power and pressure	http://dx.doi.org/10.1016/j.vacuum.2009.01.009		
R. I. Badran	Analysis of field dependent steady-statephotocarrier measurements for polymorphous and microcrystalline semiconductors	Journal Materials Science: Materials in Electronics http://dx.doi.org/10.1007/s10854-006-9047-x	18, 4, 405-414	2007
R. I. Badran and N. Al-Awwad.	On electronic properties from the application of field dependence SSPG approaches to polymorphous and microcrystalline silicon semiconductors	Journal of Optoelectronics and Advanced Materials	8, 4	2006
R. I. Badran, C. Main and S. Reynolds.	Analysis and modeling of generation- recombination noise in amorphous semiconductors	Thin Solid Films http://dx.doi.org/10.1016/S0040-6090(02)01159-8	**427** , 133-36	2003
R. I. Badran, D. J. Parker and I. M. Naqib	Complete and incomplete fusion in reactions of $^{7}Li + ^{56}Fe$ at E (^{7}Li) = 50 and 68 MeV from analysis of recoil range light particle measurements".	European Physical Journal http://dx.doi.org/10.1007/s100500170009	**12**, 317-325	2001

C. Main, S. Reynolds, **R. I. Badran** and J. M. Marshall	High resolution density of states spectroscopy in semiconductors by exact post-transit current analysis.	Journal of Applied Physics http://dx.doi.org/10.1063/1.373797	88,1190-1192	2000
R. I. Badran, I M Naqib, D J Parker and J Asher	Strong absorption formalism applied to the direct transfer reaction ^{56}Fe (^{7}Li, ^{4}He) ^{59}Co* leading to continuum states	Journal of Physics : Nuclear and Particle Physics http://iopscience.iop.org/0954-3899/22/10/008	22, 1441	1996
R. I. Badran, S. Jamila, P. J. Kirk, C. A. Bates and J. L. Dunn.	First and second-order reduction factors for E ⊗ e Jahn-Teller system.	Journal of Physics: Condensed Matter http://dx.doi.org/10.1088/0953-8984/5/10/008	5, 1505-1816	1993

CONFERENCES

AUTHOR/S (IN ORDER)	TITLE	CONFERENCE	COUNTRY	DATE
R. I. Badran and R. Bruggemann	Exploitation of the electric-field dependence of photocarrier properties by application of the steady-state photocarrier grating technique	19th European Photovoltaic Solar Energy Conference and Exhibition	Paris/Jordan	June 7-11, 2004
R. I. Badran	Dynamical Jahn-Teller effects in the excited 3T1 and 3T2 states of V3+ ion in III-V semiconductors.	Third Conference on Physics of Condensed Matter	Jordan	17-21 April (1994)

R. I. Badran	Further Investigation on the transfer reaction 7Li on 56 Fe at 50MeV incident energy.	First International Conference of Mathematics and Nuclear Physics	Cairo/ Egypt	April 2003
C. Main, S. Reynolds, **R. I. Badran**	Generation-recombination noise on amorphous semiconductors.	CHELSEA Amorphous and Organic Semiconductors Meeting, Imperial College Science, Technology and Medicine	London/UK	April 5-6 (2001)
C. Main, S. Reynolds, **R. I. Badran**, and J. M. Marshall	Improved high-resolution post-transit spectroscopy for determining the density of states in amorphous semiconductors.	IOP European Workshop on Novel Photovoltaic Materials	University of Bath/UK	July (2000)
R. I. Badran	Further analysis on the interband transitions of V3+ ions in GaAs and InP hosts under uniaxial stresses.	The First Conference on Physics and Condensed Matter	Jordan	May (1997)

عضوية الجمعيات العلمية والمهنية و اللجان

I. King Abdulaziz University:

Member and consultant of the academic accreditation committee, 2009-2010

II. The Hashemite University:

1. Member, Faculty of Science and arts Council, 1995-1996.

2. Member, Deposit Fund Committee, The Hashemite University, 1998-1999.

3. Member, Faculty of Science Library Committee, 1995- 2005.

4. Member, Faculty of science and Arts Social Committee, 1999-2000.

5. Member, Faculty of science and Arts Council, 1999-2000

6. Member, Faculty of Science and Arts Cultural Committee, 1998-1999.

7. Member, Faculty of science and Arts Checking Marks Committee, 1997-1998.

8. Member of various Departmental and Faculty Committees including examination and scheduling committee, graduate studies and the scientific research committee, social committee, checking marks committee, library committee, 1995-2003.

9. Member, Faculty of Science and Arts, Cultural Committee 2003-2004.

10. Member of Graduate Studies committee, Department of Physics, 2005-2006

11. Member, Faculty of Science Cultural Committee, 2010-2011

12. Member of Committee, Center of studies, Consultations and Community Service, 2010-2011

13. Member of Hashemite University Council, Representative of Faculty of Science, 2010- 2011.

14. Member of Graduate Studies and Scientific Research Committee, Department of Physics, 2012-2014

15. Member of the Academic Developing Committee in Hashemite University, 2015- 2016.

16. Member of Curriculum Committee in Hashemite University, 2017/2018-2019/2020.

17. Member of Decision- Making Committee for Students Affairs in Hashemite University, 2017/2018-2

018/2019.

18. Member of Students Marks Committee in Hashemite University, 2017/2018- 2018/2019. Head of this committee 2019/2020

19. Member of Disciplinary Appeals Board of Member of Academic Staff in Hashemite University, 2016/2017,

2017/2018 and 2019/2020

20. Chairperson of Disciplinary Appeals Board of Employees in Hashemite University, 2016/2017,

2017/2018.

21. Head of team working for international accreditation (ABET) for the programs of Faculty of Science.

III. Petra Private University (previously Jordan University for Women):

-Member, Faculty of Science Council, 1993 - 1995.

-Member, Faculty of Science Social Committee, 1994 - 1995.

-Board of Trustees Member of Petra University, Nov. 2017- Present (For Four years)

IV. Members of Editorial board

1. "**Jordan Journal of Physics**" (Editorial Board Member)
   https://www.scimagojr.com/journalsearch.php?q=21100871853&tip=sid&clean=0

2. **"Journal of Nanoelectronics and Optoelectronics"** (***Associate Editor***)
   http://www.aspbs.com/jno/jno_editorial.htm (American Scientific Publishing)

3. ***Science of Advanced Materials*** (Editorial Board Member)
   http://www.aspbs.com/sam/(American Scientific Publishing)

4. **Sensor Letters** (Editorial Board Member)
   http://www.aspbs.com/sensorlett/editorial_sensorlett.htm (American Scientific Publishers, USA)

MEMBERSHIP:

-Graduate member of the Institute of Physics (IOP)-London.

-Member of the Jordanian scientific research society, Amman, Jordan.

- Member of the Hashemite University Personnel Club.

UNIVERSITY COMMITTEES (AAU)

Member, Dean Council, 2022 – Now

Member, Faculty of Arts and Sciences, Scientific research Committee 2022-Now

Member, Faculty of Arts and Sciences, Curriculum Committee 2022-Now

الدورات التدريبية التي التحق بها

1. Regional workshop on Nanotechnology, organized by Sultan Qaboos University, between 12th- 14th January 2008 at Muscat, Oman.

2. First Yarmouk school for computational condensed matter and Nano systems, organized by center for theoretical and applied physical sciences, Yarmouk University, between 31st Oct.-Nov. 4th , 2010, Irbid, Jordan.

3. Training Course in UNIX systems organized by AST Computer Company, Jordan held at its main office in Amman, Feb. 1-5, 2000.

4. IT Premier workshop on Basic Web technology skills for courseware development held at Yarmouk University, Irbid, Jordan, Feb. 11-15, 2001. This workshop is collaboratively organized by UNESCO-Cario Office, Yarmouk University and cosponsored by UNDP.

5. IT Premier workshop on Basic Web technology skills for courseware development held at The Hashemite University, Zarqa, Jordan, Dec. 1 to Feb. 2, 2003

الندوات العلمية

l. Nanocrystalline semiconductors: A new era of Photovoltaic applications, April 24, 2009, Physics Department, King Abdulaziz University, Jeddah, KSA.

2. A comprehensive study of nanocrystalline silicon semiconductors, March 19, 2008, Physics Department, King Abdulaziz University, Jeddah, KSA.

3. Theoretical work on electronic properties of microcrystalline semiconductors, Nov. 1, 2006, Physics Department, King Abdulaziz University, Jeddah, KSA

4. Generation-Recombination Noise in Amorphous Semiconductors, July 27, 2003 GRECO, Physics Department, Oldenburg University, Germany.

5. Incomplete Fusion of 7Li + 56Fe at Incident Energies of 50 and 68 MeV, April 4, 2003, Physics Department, The Hashemite University.

6. Perturbation Theory as Applied to Complex Systems, Sept. 1994, Physics Department, University of Applied Sciences, Jordan.

7. Jahn-Teller Effects in Crystalline Semiconductors, May 15 1995, Physics Department, Mu'ta University, Jordan.

8. Some Aspects of Vibronic Interactions in Complex Molecules and Crystalline Solids. Jan, 9, 1993, Physics department, Jordan University.

9. Theoretical Studies of Heavy Ions at Intermediate Energies using The Diffraction Model, Oct. 11, 1986, Group of Nuclear Physics, Kuwait Institute of Scientific Research, Kuwait

الاهتمامات البحثية

1. The studies of photoelectrical and optical properties of amorphous and nanocrystalline thin films semiconductor using the Steady-State Photocarrier Grating (SSPG) technique and sepectrophotometry. This includes a specific study of the minority carrier properties and the optical constants. The experimental studies are accompanied with the implementation of different theoretical approaches. Furthermore, the study of electrical properties of ZnO nanowires, nanorods and nanosheets fabricated as heterojunction diodes, is another interest.

2. The study of electrical properties of semiconductors, via the transient photoconductivity (TPC) and the modulated photoconductivity (MPC) on nanocrystlline and amorphous semiconductors samples is conducted where the numerical methods of Fourier and Laplace transforms are used to determine the density of states in the mobility gap.

3. The analysis of noise in semiconductor devices is also conducted. The analysis of generation-recombination noise in amorphous semiconductor devices based on multipletrapping-state regime using the equivalent circuit model of Chaplin is the main theme of this work. The spectral noise is calculated and compared to the theoretical results of other models. Monte-Carlo simulation programs are also developed to calculate the spectral noise and these results are compared to the above-mentioned theoretical results and experimental data.

4. Research work in nuclear physics involving heavy ion collisions is of one of my interests. The first part of this research deals with the analysis of elastic scattering of heavy nuclei at low energies. While the second part involves the incomplete fusion, and transfer reactions of different heavy nuclei at various energies. Different numerical models are developed and employed in this theoretical work.

5. The theoretical studies of the transition metal ions as impurities in the crystalline group III-V semiconductors are the main theme of my research work in solid state physics. The analytical method of unitary transformation followed by energy minimization is used to study the E⊗ e Jahn-Teller system in the strong coupling limit. The inversion splitting and reduction factors are obtained analytically. The Schrödinger equation is solved for this complex system, and the perturbation theory is used. This work also involves modeling the transition metal ion V^{3+} as an impurity in the GaAs, GaP, and InP semiconductors. In particular, the analysis of the structure of the zero-phonon lines of transitions within V^{3+} ions, in the above-mentioned hosts, under the effects of spinorbit coupling, uniaxial stress and external magnetic field which are accompanied by Jahn-Teller effects, are studied.

اللغات

اللغة العربية
اللغة الانجليزية
اللغة الفرنسية (متوسط)

نشاطات أخرى

1. Served as evaluator for different applications of promotions to rank of associate professor and professor of physics at different regional Universities

2. Served as a project evaluator at Mayar International School-Amman, Jordan for projects of students presented at "Science Fair", held on May 2012, and on May 2013.

3. Nominee by Saudi Physical Society in collaboration with ARAMCO-SA and King Fahd University for petroleum and minerals (KFUPM) to contribute in summer teaching program to teach special oriented topics in physics for intellectual students (graduate and postgraduate levels) and physics teachers in SA schools and teaching assistants at Saudi Universities at summer scientific school held at KFUPM, Dhahran, 2007-2008.

4. Served as member of the qualifying exam committee, ministry of higher education, for the academic year 2005-2006.

5. Served as member on the organizing committee for the cultural and scientific day held at the Hashemite University held on April 27, 2004.

6. Served as member on the organizing committee of the seventh Petra School of Physics held by the Jordan Council for scientific research on Sept., 17-22, 2000 at Jordan University.

7. Served as member on the organizing committee for the elections of the students Council at the Hashemite University held on April 18, 1999.

8. Attending meetings of the society for friends of scientific research as a member of this society, Amman, Jordan, 2001/2005.

الجوائز التي حصل عليها

1. Research Awards from Hashemite University, 2012, 2013, 2014, 2015. 2016 and 2017
2. Our Accepted article in "Vacuum" journal has been chosen by Elsevier among the top 25 articles in the period between April to June 2009
3. Distinguished Research Award from King Abdulaziz University, Nov. 2009
4. Distinguished Research Award from King Abdulaziz University, Dec. 2010

5. Part-time teaching assistantship from Physics Department, University of Nottingham (Oct. 1990 June 1991).
6. Kuwait University Academic Assistantship (Sept. 1982- Mar. 1986).

الإشراف على طلبة الدراسات العليا

1. Supervising Anwar Issa, MSc student at HU, in her research work: Analytical solutions of nonlinear differential equations for problems in semiconductor physics using approximation methods (2016)

2. Supervising Wafa Mashaqbeh, MSc Student at HU, in her research work: Analysis of a set heavy-ion of nuclear reactions at different energies and above Coulomb barrier based on Regge pole and strong absorption models (2015).

3. Supervising Amani Estaiti, MSc Student at HU, in her research work: Regge pole analysis of elastic scattering of α-particles on different target nuclei at incident energies above Coulomb barrier (2014).

4. Supervising Dana Al-Masry, MSc Student at HU, in her research work: Numerical modeling and analysis of nuclear reactions of heavy ions at different energies using parameterization models (2012).

5. Supervising Huda Al-Amodi, MSc Student at KAU-Saudi Arabia, in her research work: Analysis of optical and photoelectronic properties of nanocrystalline materials (2011).

6. Supervising Hind Badahdah, MSc Student at KAU-Saudi Arabia, in her research work: Analysis of angular distribution of elastic scattering reactions for heavy nuclear ions based on the diffraction model (June, 2009).

7. Supervising Reem Al-Khalidi, MSc. Student at HU, in her research work: "A theoretical study of the elastic scattering of nuclear heavy ions by using the strong absorption model", (July 2006).

8. Supervising Noor Al-Awaad, MSc. Student at HU, in her research work: "Theoretical analysis of the electronic properties of microcrystalline and amorphous semiconductors", (May 2005).

المعرفون

1-Prof. Ahmad Umar
Collaborative Research Centre for Sensors and Electronic Devices (CRCSED),
Advanced Materials and Nano-Engineering Laboratory (AMNEL),
Centre for Advanced Materials and Nano-Engineering (AMNEL),
Najran University, P. O. Box 1988, Najran-11001, Kingdom of Saudi Arabia
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2-Prof. Ali Al-Karmi
Vice President for scientific Colleges and Centers,
The Hashemite University, Zarqa, Jordan.
Tel.:+962(5)3903333
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e-mail: karmi@hu.edu.jo

3- Prof. Abdallah Qteish
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e-mail: aqteish@yu.edu.jo

4- Dr Rudi Brueggemann
Institut für Physik,
Carl von Ossietzky Universität Oldenburg,
D-26111 Oldenburg,

Germany,
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