

Kamal A. Al Saleh

Professor of Physics

December 2014

PERSONAL INFORMATION

Work Address: Department of Physics
The University of Jordan
Amman – JORDAN

Qualification: Ph.D. in Physics / 1984
Penn State University / USA

Rank: Professor of Physics, since 1998

Field of Specialty: Experimental Condensed Matter Physics.

Telephone: 0096265238115
Mobile: 00962777498235
Email: k.saleh@ju.edu.jo &
kamals1950@gmail.com

Nationality: Jordanian
Marital Status: Married, Five children



CAREER OBJECTIVE:

I am very motivated to teach various Physics courses, especially those of computer based courses; in which computer is utilized as an assisted teaching and learning tool for Physics applications and problem solving. I have been training students on computational skills to reinforce analytical and numerical methods to do modeling, simulation, visualization and animation in different Physics fields.

In the past fourteen years, I have been actively involved in developing and teaching the following computer based courses, with specific emphasis on computational skills and focusing on analytical and numerical physics applications and Physics problem solving:

- "Capstone course"; undergraduate course at the United Arab Emirate University.
- "Software Packages in Physics I"; undergraduate course at the University of Jordan.
- "Software Packages in Physics II"; undergraduate course at the University of Jordan.
- "Computational Physics"; graduate course at the University of Jordan.

I have prepared a website for my teaching activities at the following link:

<http://computersinphysics.weebly.com>

Recently, I have also started to post my courses on the University of Jordan's faculty web site at the link:

<http://eacademic.ju.edu.jo/k.saleh/default.aspx>

I also have an electronic page on Google Scholar which is follow up on my research activities and publications at the link:

<http://scholar.google.com/citations?hl=en&user=8WUF7AQAAAAJ>

EDUCATION AND CREDENTIALS

Qualification	Name of Institution	Location of Institution	Year completed
Ph. D. / Physics	Penn state University	Pennsylvania / USA	1984.
M. Sc. / Physics	The University of Jordan	Amman / Jordan	1977
B. Sc. / Physics	The University of Jordan	Amman / Jordan	1973
High School Diploma	Al Husain College	Amman / Jordan	1969

AWARDS

- Pennsylvania State University Graduate Teaching /Research Assistantship (Sept. 1983 - Sept. 1984).
- The University of Jordan scholarship for Ph.D. study at Pennsylvania State University (Sept. 1979 - Sept. 1983).
- The University of Jordan, Graduate Teaching Assistantship (Sept. 1976 - June 1977).

THESES TITLES AND FIELDS OF STUDY

Ph.D. : Construction of a New Atom - Probe and its Application to Study of Solute Behavior in Dilute Iron Base Alloys.

M.Sc. : The Electro-Optical Properties of Lyophobic Colloid.

CURRENT LINE OF RESEARCH

- A new research activity in the field of solar cell has been started in collaboration with some faculty member colleagues at the German Jordanian University.
- Preparation and characterization of optical and photoluminescence properties of optically active systems.
- Ion beam modification (mixing) of metal bi-layer films or metal thin films on semiconductor and characterization of material using RBS and PIXE nuclear techniques.
- X-Ray Fluorescence Spectrometry using x-ray tube and radioactive isotopes, to study of industrial, food, agricultural and geological materials; and Measurements of fundamental parameters using standard samples.
- Construction of an X-Ray Scanner used in Medical and biological applications.

CONFERENCES, TRAINING AND SCIENTIFIC VISITS

- Participation in a five weeks international training course on computer programming for x-ray analysis in Yugoslavia, organized by the international atomic energy agency; in 11/11-13/12/1985.
- Two weeks scientific visit to Hinemitener Institute of Technology / German institute to establish scientific cooperation; in 12-26/1/1989.
- Participating in the national organizing committee for the 45'th international field emission symposium in Jordan 1998.
- Participation in the 30'th International Field Emission Symposium, University of Pennsylvania, Philadelphia, August 1-5, 1983.
- Participation in the first Workshop on Van de Graaff Accelerators in research, Training and Technological Applications (ARRTA, 85), Amman-Jordan, September 8-14, 1985.
- Participation in the First Conference on Physics of Condensed Matter, PCM, Amman- Jordan, October 28-31/10/1986.
- Participation in the 2nd. Workshop on Van de Graaff Accelerators in Research, Training and Technological Applications, Amman - Jordan, November 23-27/11/1987.
- Participating in the third conference on physics of condensed matter; at Applied Science University and at University of Jordan, Amman – Jordan, in 18-21/4/1994.

- Attending the International conference on computer and information systems; at Applied Science University, Amman-Jordan, in 30/7-1/8/1994.
- Participating in the third workshop on Van de Graaff Accelerators in research, training and technological applications, University of Jordan, Amman-Jordan, in 14-17/8/1995.
- And many other local workshops and scientific conferences and activities.

PROFESSIONAL EXPERIENCE

Administration

- Chairing the physics department starting September 1997 up to September 1999.
- Supervising an international training course in using the Van de Graaff Accelerator for analysis of air particulate in cooperation with the international atomic energy agency, from Nov., 22 to Nov., 26-1997.

Academic and Scientific activities

- Teaching most of the physics courses in the physics department/University of Jordan, to freshman, undergraduate and graduate students. In the past fourteen years, I am teaching two new undergraduate courses "**Computer packages and applications in Physics**"; In addition to one new graduate course "**Computational Physics**". I taught the **Electronics and its Lab** to undergraduate students almost every year since 1984.
- Supervising research master theses for graduate students.
- As a chairman of the physics department, I have been involved in developing and restructuring of the course description and course requirements for the B.Sc. Degree in physics.
- Participation in examining committee for a number of M.Sc. and Ph.D. theses at the physics department, and participating in the preparation of comprehensive examination for Ph. D. graduate students.
- Writing with another colleague a text book in "Waves and Vibrations" for the Jerusalem Open University.
- Refereeing number of scientific publications for local and regional journals.
- Contributing to a number of research proposals, especially those supported by the international atomic energy agency (IAEA), which are related to x-ray fluorescence using x-ray tube and radio active sources, and those related to

particle induced x-ray emission (PIXE). And finally, a new research project entitled “Construction of x-ray and γ -ray computerized tomography scanner “is completed and published.

Scientific and Research Skills

- Designing mechanical parts for vacuum systems, and the mechanical parts for an x-ray scanner, in which three degrees of freedom sample holder is built and position controlled by computer using three stepper motors.
- Writing computer programs to run three stepper motors to change sample position and to control multi-channel analyzer used for x-ray data acquisition and for data storing.
- Construction of a computerized atom probe field ion microscope during my Ph.D. study in the United States. I have designed and built many mechanical vacuum parts needed for this system using the mechanical workshop. I acquired personal skills in machining and polishing stainless steel.
- I have other computer skills using the available software for word processing, data analysis, spread sheets, *Mathematica* package, Visual Basic programming Language. In addition to some computer packages needed for graphical representation and data fitting. I am using, also the computer for electronic mail and searching the internet for literature, books, education materials and many other information.
- Teaching the Electronics course and its laboratory for the B.Sc. students. In which electronic devices and their applications in analogue and digital circuits are discussed.

WORK HISTORY

Date Started	Date finished	Job title	Institute	Institute location/town
September/2011	Present	Professor of Physics	The University of Jordan	Amman/Jordan
September/2010	September/2011	Professor of Physics	German Jordanian University	Amman/Jordan
September/2003	September/2010	Professor of Physics	The University of Jordan	Amman/Jordan
September/1999	September/2003	Professor of Physics	United Arab Emirates University	Al Ain/United Arab Emirates
September/1998	September/1999	Professor of Physics	The University of Jordan	Amman/Jordan
September/1994	November/1998	Associate Professor of Physics	The University of Jordan	Amman/Jordan
September/1993	September/1994	Associate Professor of Physics	The University of Applied Science.	Amman/Jordan
September/1992	September/1993	Associate Professor of Physics	The University of Jordan.	Amman/Jordan
September/1984	November/1992	Assistant Professor of Physics	The University of Jordan	Amman/Jordan
September/1977	September/1979	Full Time Lecturer	The University of Jordan	Amman/Jordan

GRADUATE STUDENT'S THESES SUPERVISION

The following are some theses supervision on graduate students:

- Nadia Allabadi, July (1998), "X-ray Absorption measurement in some materials".
- Dina Hikmat Al-Hajou July, 1997), "Physical Factors Affecting Quantitative Measurements Using Single Photon Emission Computed Tomography".
- Jalal M. Nawash (May, 1997), "Ion Beam Mixing Studies of Some Germanide Systems".
- Ashraf Ayed Diab (April, 1997), "Ion Beam Mixing Studies of Some Silicide Systems".
- Lutfi S. Assad (May 1996), "Ion Beam Mixing Effects in The Ar⁺ - Irradiated Bilayer Thin Films Systems".
- Rana Al-Bustami (September, 1995), "Ion Beam Mixing Studies of Metal/Silicon and / or Silicon Oxide Systems".
- Fayez Amor (1996), "Ion Beam Mixing of Silver/Glass System".
- Khalid T. Shaqubo'ah (1995), "Measurements of X-Ray Fluorescence Cross Section for Some elements in the Range $20 < Z < 42$ ".
- Ismail I. Al-Hroub (July – 1993), "Atomic Mixing of Sn/Glass System by Using Ion Beams".
- Mohammad K. Al-Quadi (1993), "X-ray Cross Section Measurements for Some Elements",
- Belal A. Sa'adeh (December, 1992), "Atomic Mixing of Sb/Glass System by Ion Beams".
- Sami A. Sammour (August, 1992), "Ion Beam Mixing of Au/Glass Using An Accelerated Beam of Argon".
- Ahmad Ali Mohammad (August, 1992), "Kinetics of Ion Beam Mixing of Copper on Glass Systems".
- Ayman M. Sweiti (July, 1992), "Measurement of the Absorption coefficients at selected Elements".

In addition, many other theses supervision is before 1992 and after 2003.

THESES EXAMINING COMMITTEE MEMBERSHIP

Every academic year, I participate on the average of 5 theses examining committee.

- Reyad Al-Masharfeh, " Low Temperature Physics".
- Arwa M. Quasem, "Ion-Selective Conduction in Polyethylene Oxide".
- Fuad B. Shreiteh, "Studies of the Environmental Radioactivity in Water: Concentrations, Doses and Health Effects".
- Ahmad M. Moses, "Measurements of the Widths of Nuclear Levels by Nuclear Resonance Absorption Technique".
- Saleem Quasho, "The Magnetic and Electrical Properties of Iron / Polystyrene Composite".
- Hassan M. Al-Khteb, "Depth profile Measurements of Nitrogen Implanted in Iron Using (p, γ) Reaction".
- Nidal E'leyan, "Study of Depth Profiles of Ion-Beam Mixing Using Nuclear Radioactive Capture (p, γ) Reaction".
- Bothina Abeullah Hamza, "Optical Properties of Semimetallic Thin Films".
- Fatima Al-Momani, "Effect of Dead-Sea Water on the Mechanical Properties of Polycarbonate".
- Wafa' Al-Abdullat, "Effect of Dead-Sea Water on the Mechanical Properties of rafia Oriented Polypropylene".
- Riad Salem Ababneh, "Depth Profile Measurements of Argon Implanted In Iron Using (p, γ) Reactions".

These are some of the much other participation on theses examining committee.

PUBLICATIONS AND PROCEEDINGS

- (1) "PIXE FACILITY AT JORDAN VAN-DE GRAAFF ACCELERATOR", Naser Saleh, Awni Hallak, Kamal Al-Saleh and Dia-Eddin Arafah, Appl. Phys. Commun., 5 (1985-86) 253-262.
- (2) "COMBINED XRF AND PIXE ANALYSIS OF FLOUR", N.S. Saleh, and Kamal A. Al-Saleh, Appl. Phys. Commun., 6 (1986) 195-204.
- (3) "XRF INDUCED BY PIXE: COMPARISON WITH PIXE", Naser S. Saleh, Kamal A. Al-Saleh, J. Radioanal. & Nucl. Chem. Lett., 108 (1986) 363-373.
- (4) "NUCLEAR ANALYSIS OF JORDANIAN TOBACCO", Kamal A. Al-Saleh, and Naser S. Saleh, Nucl. Instrum. & Meth., B18 (1986) 77-79.
- (5) "MEASUREMENT OF K-SHELL X-RAY CROSS SECTIONS OF SELECTED ELEMENTS FROM Ti TO Zn FOR INCIDENT PROTONS", Naser S. Saleh and Kamal A. Al-Saleh, Phys. Stat. Sol. (a), 102 (1987) 619-623.
- (6) "A NEW APPROACH TO ABSORPTION EFFECTS USING RADIOISOTOPE X-RAY SPECTROMETRY", Naser S. Saleh, Kamal A. Al-Saleh and A. Abu El-Haija, J. Radioanal. & Nucl. Chem. Lett., 118 (1987) 177-184.
- (7) "QUANTITATIVE ANALYSIS OF STAINLESS STEEL USING NUCLEAR TECHNIQUES", A. J. Abu El-Haija, Kamal A. Al-Saleh, D. k E. Arafah, N. A. Halim, M. R. Kamal, J. M. Khalife, and N. S. Saleh, Mat. Sci. & Eng., 195 (1987) 267-271.
- (8) "COMBINED NUCLEAR MEASUREMENTS OF YEAST", N. S. Saleh, Kamal A. Al-Saleh, D. E. Arafah, and N. Halim, Nucl. Instrum. & Meth., B23 (1987) 379-381.
- (9) "XRF INDUCED BY PIXE: COMPARISON WITH RADIOISOTOPE XRF", Kamal A. Al-Saleh, J.D. Meyer, and N. S. Saleh, Appl. Phys., A42 (1987) 327-329.
- (10) "MEASUREMENT OF PHOTON INDUCED $K\text{-}\alpha$ AND $K\text{-}\beta$ X-RAY FLUORESCENCE CROSS-SECTIONS FOR SOME ELEMENTS WITH $73 < Z < 82$ ", N. S. Saleh and Kamal A. Al-Saleh, Int. J. Appl. Radiat. & Isot., 38 (1987) 975-977.
- (11) "ASSESSMENT OF JORDANIAN SALT USING NUCLEAR TECHNIQUES", Kamal A. Al-Saleh, D. E. Arafah, I.J. Jabr, and N. S. Saleh, Appl. Phys. Commun., 7 (1987) 195-208.

- (12) "MEASUREMENT OF X-RAY ATTENUATION COEFFICIENTS FOR ELEMENTS IN THE RANGE $79 < Z < 92$ ", N. S. Saleh, M.A. Sharif and Kamal A. Al-Saleh, Appl. Phys. Commun., 7 (1987) 69-76.
- (13) "MEASUREMENT OF K CROSS SECTIONS AND FLUORESCENCE YIELDS FOR ELEMENTS IN THE RANGE $42 < Z < 57$ USING RADIOISOTOPE X-RAY FLUORESCENCE", I.A. Al-Nasr, I.J. Jabr, Kamal A. Al-Saleh and N.S. Saleh, Appl. Phys. A43 (1987) 71-73.
- (14) "ANALYSIS OF JORDANIAN PHOSPHATE USING NUCLEAR TECHNIQUES", N. S. saleh and Kamal A. Al-Saleh, Appl. Phys. Commun., 7 (1987) 313.
- (15) "STUDY OF ION BEAM INDUCED MIXING IN Sb/Si SYSTEM USING ELECTRICAL RESISTIVITY", A.J.Abu El-Haija, Kamal A. Al-Saleh, N.A.Halim, J.M.Khalifeh and N. S. Saleh, Appl. Phys. Commun., 7 (1987) 301.
- (16) "ENHANCEMENT EFFECTS IN XRF ANALYSIS", N.S. Saleh, KamalA.Al-Saleh andA. J. AbuEl-Haija,J. Radioanal. & Nucl. Chem., 120 (1988) 161-165.
- (17) "STUDY OF ION BEAM INDUCED MIXING OF Sn/Si SYSTEM USING ELECTRICAL RESISTIVITY MEASUREMENTS", A. J. Abu El-Haija, Kamal A. Al-Saleh, N. A. Halim, J.M. Khalifeh, and N. S. Saleh, J. Radioanal. & Nucl. Chem., 120 (1988) 387-392.
- (18) "ION BEAM MIXING OF Te/Au: Metastable Phase Formation", I. J. Jabr, J. D. Meyer, Kamal A. Al-Saleh, and N. S. Saleh, Phys. stat. Sol. (a), 105 (1988) 177-181.
- (19) "ION BEAM INDUCED MIXING OF Cu/Au BILAYER THIN FILM (KINEMATICS AND FORMATION OF METASTABLE SOLID SOLUTIONS)", I. J. Jabr,Kamal A.Al-Saleh,andN. S.Saleh,Appl. Phys., A46 (1988) 13.
- (20) "ION BEAM INDUCED MIXING OF Cu/Si SYSTEM USING ELECTRICAL RESISTIVITY AND RBS MEASUREMENTS", A. J. Abu El-Haija, Kamal A. Al-Saleh, N. A. Halim, J.M. Khalifeh, and N. S. Saleh, Phy. Stat. Sol. (a), 107 (1988) 253-260.
- (21) "PHOTON-INDUCED L-SHELL X-RAY INTENSITY RATIO FOR ELEMENTS WITH $73 < Z < 83$ IN THE ENERGY RANGE $17 < E < 47$ keV", N. S. Saleh, Kamal A. Al-Saleh, A. J. Abu El-Haija, N. A. Halim, and J. M. Khalifeh, Int. J. Appl. Radiat.& Isot., 39 (1988) 1213-1217.
- (22) "A.C. CONDUCTIVITY OF JORDANIAN ROCK WOOL", A.J. Abu El-Haija, Kamal A. Al-Saleh, N. A. Halim, J. M. Khalifeh and N. S. Saleh, DIRASAT Nat. Sci., XV (9) (1989) 126.

- (23) "PHOTON - INDUCED K - SHELL X-RAY INTENSITY RATIO FOR ELEMENTS WITH $73 < Z < 92$ ", N. S. Saleh, M. A. Al-Sharif, Kamal A. Al-Saleh and I. J. Jabr, J. Radioanal. Nucl. Chem., 131 (1989) 35.
- (24) "COMPARISON OF ION BEAM INDUCED ATOMIC MIXING KINETICS OF Ti/Si, Fe/Si AND Ni/Si SYSTEMS", Kamal A. Al-Saleh, I.J. Jabr and N.S. Saleh, Phys. Stat. Sol., (a) 118 (1990), 467-472.
- (25) "KINETICS OF ION-BEAM MIXING AT Ti - Si INTERFACES", I.J. Jabr, N.S. Saleh and Kamal A. Al-Saleh, J. Mat. Sci. Elect., 1 (1990) 100-104.
- (26) "KINETICS OF ION BEAM MIXING IN THE Au/Si SYSTEM", N.S. Saleh, Kamal A. Al-Saleh and A.M. Al-Saie, Phys. Stat. Sol., (a) 120 (1990) 169-173.
- (27) "ION BEAM MIXING OF NOBLE METALS - Ge BILAYER THIN FILMS", N.S. Saleh, Kamal A. Al-Saleh and A.A. Saleh, Nucl. Instrum. Meth., B47 (1990) 263-270.
- (28) "ION BEAM INDUCED ATOMIC MIXING KINETICS OF Te/Cu AND Te/Ag ", N.S. Saleh, I.J. Jabr and Kamal A. Al-Saleh, Nucl. Instrum. Meth., B71 (1992) 264-270.
- (29) " ION INDUCED ATOMIC TRANSPORT IN Pd/Ge SYSTEM" , Kamal Al-Saleh and N.S. Saleh, Nucl. Instrum & Methods, B 119 (1996) 395- 402.
- (30) "KINETICS OF ION BEAM MIXING OF THE Te/Se SYSTEM" , N. S. Saleh and Kamal A. Al-Saleh, Phys. Stat. Sol. (a) 157 (1996) 399-404.
- (31) "ION BEAM MIXING OF Au/In BILAYER THIN FILM : GROWTH OF INTERMIXED LAYER" , Kamal A. Al-Saleh and N. S. Saleh, Phys. Stat. Sol. (a) 161 (1997) 407-413.
- (32) " ION-INDUCED PHASE FORMATION IN Sb/Cu SYSTEM ", Kamal A. Al-Saleh, Il Nuovo Cimento, Vol. 20D, pp 1703-1714, November (1998).
- (33) "L X-RAY FLUORESCENCE CROSS SECTIONS OF HEAVY ELEMENTS EXCITED BY 16.04, 16.90, AND 17.78 keV PHOTONS", Kamal A. Al-Saleh and N. S. Saleh, Rad. Phys. & Chem. 54 (1999) 117 – 124.
- (34) " Mixing in Au/Ge system induced by Ar⁺ ions ", J.M. Nawash, N.M. Masoud, Kamal .A. Al-Saleh, N.S. Saleh, Journal of Material Science, 42 (17) (2007), Pages 7488-7493 .
- (35) "Study of interface mixing by Ar⁺ ion irradiation on Ag-Ge bilayer system", J.M. Nawash, N.M. Masoud, K.A. Al-Saleh, N.S. Saleh, Applied Physics A 97 (2) (2009), Pages 309-314.

- (36) Description of a transmission X-ray computed tomography scanner, M.S. Hamideen, J. Sharaf, **K. A. Al-Saleh**, M. Shaderma, Radiation Physics and Chemistry, Volume 80, (2011), Pages 1162–1165.
- (37) Infrared photoluminescence of sol–gel spin-coated films of rare-earth activated lanthanum silicate, H.K. Juwhari, M.H. Kailani, B.I. Lahlouh, S.A. Abedrabbo, **K.A. Saleh**, W.B. White, Materials Letters, Volume 87, 15 November (2012), Pages 80-83.
- (38) Measurement of Photon-Induced L X-Ray Fluorescence Cross Sections for Ho and Yb in the 16.04 – 24.68 keV Energy Range, H Al-Taani, N Saleh, K Al-Saleh Journal of Modern Physics, Volume 5, Number 15, September (2014), pages 1412-1417.