

CURRICULUM VITAE (January, 2023)

Dr. "MOHAMMED HUSSEIN" M. R. KAILANI

PERSONAL DATA:

Name: "Mohammed Hussein" "Mohammed Rasoul" Kailani
Date of Birth: July 2nd, 1964.
Place of Birth: Amman, Jordan
Nationality: Jordanian

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Languages: Arabic, English

POSITION: **Faculty Member – Professor, Chemistry Department**
University of Jordan (1/9/2013 to Present)

PREVIOUS POSITION(S): **Professor, Chemistry Department (Unpaid Leave from 9/2017)**
University of Jordan (1/9/2013 to Present)

Chairman of Department of Chemistry/Jordan Univeristy (1/9/2013 to 1/9/2014)

Visiting Research Fellow / University of Hertfordshire – U.K.
Faculty of Engineering and Information Sciences (1/9/2006 to 1/9/2009)

Royal Scientific Society (6/1993 to 9/2003)

1- Manager of Quality: Mechanical Design and Technology Center (MDTC)

2- Deputy for: 1- Head of **Materials Technology Division/ MDTC**

2- Technical Manager for **Plastics and Rubber Laboratory /**
Accredited by German Accreditation System for Testing (DAP).

3- Member: **Many National Committees (see next page)**

ACADEMIC QUALIFICATIONS:

Ph.D. in Polymer Science (May, 1993)

Institute of Materials Science, University of Connecticut, Storrs, Connecticut, USA.
Dissertation: "Investigation of the Chemical Imidization Process for Polyimides"

M.Sc. in Polymer Science (May, 1990)

Institute of Materials Science, University of Connecticut, Storrs, Connecticut, USA.
Thesis: Synthesis and Characterization of Model Imide Compounds of 1,5-Diamino naphthalene.

B.Sc. in Chemistry (May, 1987)

State University of New York (SUNY), College at Fredonia, Fredonia, New York, USA. American Chemical Society (ACS) Certified Degree.

Independent Lab Research:

Synthesis and Characterization of a Series of Poly (methylmethacrylate- vinylidene chloride) Copolymers.

Honours

Ph.D. Dissertation Reported to be **Best Reference in the World**, on the subject, according to Dr. Carrinton D. Smith, of **Air Products Corp.**, Allentown, Pennsylvania, USA; (A Fortune 500 Company with sales over \$ 5 billion to more than 100 countries around the world) during a lecture given in the "4th Technical Symposium on Polyimides and High Performance Polymers", Montpellier - France, May 1996.

- **Jordan's Nominee** For The **United Nations** Prize for Young Scientists (Javed Husain Prize For Young Scientists, 1997).

- Graduate Records Exam (**GRE**) Internationally Standardized Test:
Scored **580/600** on **Chemistry** Subject Exam, (1987).

- **Dean's List**

State University of New York (SUNY), College at Fredonia, Fredonia, New York, USA

PROFESSIONAL EXPERIENCE:

(10/2003 – Present) **University of Jordan/ Faculty of Science/ Department of Chemistry**

- **Associate Professor of Chemisty (Polymer Science / Organic Chemistry)**

- **Research Area and Intrests**

Research & Development of novel products and processes related to Sustainable Energy, As well as, products and materials to improve human health and reduce human suffering.

1- **Stem Cell Research:** Member of Research Team for Projects

"Best Stem Cell Source on a Scaffold to Create Full Thickness Human Skin in an Efficient, Fast, Reliable and Cost-Effective Method" Funded by Ministry of Higher Education and Scieintific Research (from 4/2010 to 4/2012).

"Synthesis and characterization of scaffolds for bone tissue engineering" Funded by Deanship of Deanship of Academic Research- University of Jordan (from 9/2010 to 9/2011)

"Fabrication of Novel Composite Scaffolds, and Inject able Bone Cement For Bone Tissue Engineering" Funded by Deanship of Deanship of Academic Research- University of Jordan (from 3/2012 to 3/2013)

2- **Fuel Cells Research:** Local preperation of low cost high performance proton conducting membranes, catalysts and fuel cells using nano technology including nano Platinum catalyst and nano structured high temperature proton conducting membranes. Currently we are making **custom Test System** to measure proton conductivity at different temperatures and humidity.

3- **Other areas of research are:** Synthesis of New **Antimicrobial Compounds,**

Development of Novel High Perfrmance **Photosensitive Polymers** and Technologies,

Synthesis of Novel Functional Polymers for Sustainable Energy Generation (**Piezoelectric Polymers**).

4- **Chemical Security and Safety:** Consumer Safety Issues, Laboratory Safety, Safety in dealing with Hazardous Substances-Agents.

5- **Consumer Protection:** Introduced a Simple Technology that was adopted by Jodran Institute of Standards and Metrology (JISM) to prevent mixing of different grades of Gasoline (90 octane) with (95 octane) in Gasoline stations.

Higher Education Examination Committees and Graduate students supervision

Date	Thesis Title / Advisor /Univesity	Student Name	Type
2020	MSc /Distribution of Pesticide Residue Levels from alive Local and Imported Bulls meat and Organs in Jordan/ Dr. Shareef Arar/ Jordan Univeristy	Reem Nader Omair (Department of Chemistry)	Internal Examiner
2019	Synthesis and charactrization of green novel poly(ester urethane)s based on 2- aminomethylfuran	Hadeel Abu-Kreefeh	Internal Examiner
2017	PhD /Preparation of Polyesters and Poly(ester amide)s Derived from the Renewable Isosorbide/ Dr. Bassam Swileh/ Jordan Univeristy	Ban AL Tayyem (Department of Chemistry)	Internal Examiner
2013	MSc /Toxicological effect of Ester-Carbonate copolymer on human fibroblasts and collagen production/Dr. A Awidi/University of Jordan	Razan Mufleh Tayaa Alajoleen (Faculty of Medicine)	Co-supervisor
2012	MSc /Development of Test System to Test Polymeric Membranes for Hydrogen Fuel Cells at High Temperatures (above 80 C) and different Humidity Conditions/Dr. Mahmoud AL Hussein/ University of Jordan	Gada Hussein Almadani (Department of Physics)	Co-supervisor
2010	MSc /Sustainable Management of Plastic Bags in Jordan /Dr. Moatasem Saidan/ Princess Sumaya University	Linah Mahmoud Ansour (Department of Engineering)	External Examiner
2010	MSc /Synthesis, Characterization, and Properties of Poly(2-hydroxyethyl methacrylate-co-N-vinyl-2-pyrrolidone)-graft-Lactide/ Dr. Mohammad M. Fares and Dr. Shereen M. Assaf/ Jordan University of Science and Technology	Anees A.M. Jaber (Department of Chemistry)	External Examiner
2010	PhD /Synthesis And Antimicrobial Studies of Some New Polymer Based on PYRIDINE-2, 6-DICARBOXYLATE/ Dr. Bassam Swileh/ Jordan Univeristy	Dalia Khalil Ali (Department of Chemistry)	Internal Examiner
2010	MSc /Synthesis and Characerization of 4,4'-(5-Methyl-1,3-Phenylene)Bis(Oxy)Dianiline and Its Use in Making Sulfonated and Non Sulfonated Polyimides/ Dr. Bassam A. Sweileh/ Jordan University	Mohammad Saleh Al Zubi (Department of Chemistry)	Co-supervisor
2009	MSc /Synthesis and Characerization of New Sulfonated Polymers for Fuel Cell Application Based on Tetramethyl Benzidine and 4,4'-Diaminostilbene-2,2'-Disulfonic Acid/ Dr. Bassam Sweileh/ Jordan University	Fatin Mohammad "Abu Orabi" Al Adwan (Department of Chemistry)	Co- Supervisor

PROFESSIONAL EXPERIENCE:

(7/1993 – 11/2003) Royal Scientific Society (RSS)

“ RSS is Jordan’s Main Testing, Research and Development Organization ”

POSITION(S) Held: **Quality Manager/** Mechanical Design and Technology Center (one of six technical centers of RSS).

Deputy 1- Head of Materials Technology Division (A division that is responsible for about 75% of testing services done by MDTC).

2- Technical Manager for Plastics and Rubber Laboratory (An Internationally Accredited Laboratory by “German Accreditation System for Testing”- DAP-).

Researcher Plastic & Rubber Laboratory

Chairman Technical Committee responsible for revising Jordanian Standards and Technical Regulations for **Polymeric materials and Products** (1/2002 to 12/2003)

Member Technical Committees:

- 1- **Polymeric materials** – Higher Council for Science and Technology (12/2002 – present)
- 2- National Supervisory Committee for the **Soft Drink Industry** on the subject of Foreign Matter Contamination in Soft Drinks. Ministry of Health (8/1999- 12/2003)
- 3- National Supervisory Committee for the **Management of Plastic Waste and It’s Disposal**. Ministry of Environment (1/2003 - 12/2003)
- 4- Permanent Committee for Standards and Technical Regulations for **Polymeric materials and Products** (# 22) Jordan Institution for Standards & Metrology (1/2003 to 12/2003)
- 5- Other committees (see pages 3, 4, 9 and 10)

Quality **Quality Manager / Mechanical Design & Technology Center (MDTC)** (3/1997 – 11/2003)

- MDTC is one of the six Technical Centers in the Royal Scientific Society and Provides Services in areas of: Equipment Design and Manufacturing, Testing of Plastic; Rubber and Metallic Products (test imported products for conformity with standards), Non destructive testing and Inspection (Level 3), R&D, Technical Consultations, Third Party Inspection, Quality Control Agreements, Advanced Specialized Training, Participation in writing National Standards, Evaluation of Patent Applications and others.
- MDTC was awarded **ISO 9000 certification** and has several **Internationally and Nationally Accredited laboratories (Jordanian, United Kingdom and German Accreditation Systems, JAS, UKAS and DAP).**

Member in several RSS Committees: **RSS Quality Committee** (3/1997 - 2003), **Committee** on revising RSS Employee's Evaluation System, **sub-Committees responsible for Revising** RSS Quality System (1999-2000). **Chairman of Quality Sub-Committee** Mechanical Design & Technology Center (3/1997 - 2003).

Deputy Quality Manager (1/1995 - 3/1997)
Mechanical Design & Technology Center (MDTC)

Research & Testing

Researcher (7/1993 - 11/2003)
Plastic & Rubber laboratory

Investigation / Study (11/2002)
Performed an Analysis to determine cause of Fitting's Damage (Swimming pool pipework) in the Le Meridian Hotel , Amman – Jordan

Loss Adjustment Study (9/2002)
Performed an Analysis to determine profit loss in a Court case due to Breach of Contract between Galvanized Steel Pipe manufacturer and a contractor who buys the scrape zinc. Amman – Jordan

Investigation / Study (7/2002)
Performed an Analysis to determine cause of Damage to Commercial Signs for “ Housing Bank for Trade and Finance”

Introduced Vehicle Tire Testing to Jordan (12/2001)
Introduced testing of Vehicle Tires to Jordan, whereby, Jordan Institution for Standards and Meterlogy started vehicle Tire Testing on imported vehicle tires.

Trainer (11/2001)
Trained Royal Scientific Society Employees on testing of **Vehicle Tires**

Investigation / Study Project (10/2001)
Determination of International Health Requirments for **Soft Contact Lenses**

Project Leader (8/1999 – 1/2000)
Foreign Matter Contamination in Carbonated Soft Drinks in Jordan (Returnable Bottles Sector).

Member of National Supervisory Committee for the **Soft Drink Industry** on the subject of Foreign Matter Contamination in Soft Drink (carbonated) Beverages. (8/1999- Present)

Member of RSS Committee for Reviewing the “Draft **National Requirements for Industrial Liquefied Petroleum Gas (LPG) Facilities**”. (1/2000- 2/2000)

Project Leader (6/1995 - 12/1997)
Suitability (Health) of Plastics Used in Food and Pharmaceuticals Packaging in Jordan

* **Worked on many projects (see pages 9 and 10)**

Financial

Treasurer (10/1995 - 11/1997)
Crown Prince Al- Hassan Cooperative Housing Project for the Employees of the Royal Scientific Society.

Education

Assosiate Professor of Chemistry / University of Jordan (10/2013 - present)

Teaching Courses : Polymer Chemistry, Polymer Science Techology, Organic Chemistry, Organic Chemistry Laboratory, General Chemistry, General Chemistry Laboratoy for Chemistry Students, General Chemistry Laboratoy for non Chemistry Students, Systematic Identification of Organic Compunds...etc.

Instructor (General Chemistry) Part-Time (10/1994 - 10/1995)
Princess Sumaya University College for Technology, Amman, Jordan. (RSS Affiliated University)

Professional Meetings

Lecturer (October 11, 2012)
“Safety in Science Laboratories: General Rules and Guidelines” given to students, in **Faculty of Science** /Jordan University, Amman, Jordan.

Lecturer (October 23, 2010)
“Polymer Use in Tissue Engineering” Jordan University Stem Cell Initiative Conference 2010, Organized by “International Federation of Medical Students’ Associations (IFMSA)”, October 22 – 23, 2010, Amman, Jordan.

Lecturer (October 20, 2010)
“Safety in Science Laboratories: General Rules and Guidelines” given to: all students, employees and faculty members belonging to **Faculty of Science** /Jordan University. Part of the Safety Awareness Program, Amman, Jordan.

Lecturer (October 9, 2010)
Preparation of Novel Materials for Fuel Cell Applications in Jordan (Membrane and Catalyst Materials)”, 11th Eurasia Conference on Chemical Sciences, 6-10 October 2010, The Dead Sea- Jordan.

Lecturer (April 25, 2009)
“Chemistry of Fire” lecture during Police officer’s training course **“Arson/Fire Investigation”** given to Forensic Officers at **Forensic Laboratories Department/Public Security Directorate** /Hashemite Kingdom of Jordan, Amman, Jordan.

Lecturer (June 7th 2001)
Lecture Title: **“Customer Satisfaction with the Metrology, Standardization, Testing and Quality Management Services in Jordan”** given in: *Workshop Titled “21st Century Quality Management in Jordan – Impacts of Jordanian – German Cooperation”* on the occasion of 10 years of fruitful Technical Cooperation, held from 5th to 7th June, 2001.
Organized by: Deutsche Gesellschaft Fur Technische Zusammenarbiel (GTZ) GmbH and Jordan Institution for Standards & Metrology (JISM)
Place: Inter-Continental Hotel-Amman, Jordan

Lecturer (24/5/1999)
Lecture Title: **“Products and Services of the Plastics and Rubber Laboratory (Royal Scientific Society) in the Area of Potable Water Pipes”**
Seminar: “Use of Plastic Pipes in Potable Water Distribution”
Organized by: International Plastics Company, Amman-Jordan
Other Lectures by British Petroleum (BP)/U.K. and Local Consultants working in the field of Water Distribution
Place: Marriott Hotel-Amman, Jordan

Member of Scientific Committee & Session Chairman (16-19/3/1998)
First Italian-Jordanian Conference “Plastic Materials: Technology, Industry and Environment”
Organized by:
1-Jordan Higher Council for Science and Technology, Jordan
2-CONSIGLIO NAZIONALE DELLE RICERCHE, Italy
3-UNESCO ROSTE, France
Place: Royal Cultural Centre -Amman, Jordan.

Lecturer (3/8/1997)
Lecture Title: **“Introduction to Plastics”**
Seminar: Pan Arab Workshop on Injection Molds Manufacturing
Organized by: Jordan Engineers Association
Place: Jordan Engineers Association-Amman, Jordan.

Lecturer and Session Chairman (13/4/1997)
Lecture Title: **“Introduction to Polymers: Plastics and Rubber Materials”**
Seminar: Plastics Day
Organized by: Jordan Engineers Association
Place: Jordan Engineers Association-Amman, Jordan.

Technical Advisor / Paper Evaluation (June 1996)
Second Jordanian Mechanical Engineering Conference
Organized by:
Jordan Engineers Association & University of Jordan.
Place: University of Jordan-Amman, Jordan.

International Meetings **Lecturer** (October 9, 2010)
Preparation of Novel Materials for Fuel Cell Applications in Jordan (Membrane and Catalyst Materials), 11th Eurasia Conference on Chemical Sciences, 6-10 October 2010, The Dead Sea- Jordan.

Regional Meetings **Lecturer** (1-3/10/1995)
United Nation's (ESCWA/UNIDO) EXPERT Group MEETING - "Techno-Economic Aspects of the Commercial Application of New Materials in the ESCWA Region".
Organized by:
United Nations Economic and Social Commission for Western Asia (ESCWA) and United Nations Industrial Development Organization (UNIDO).
Place: Al-Ain, United Arab Emirates (U.A.E.).

The Regional Forum on Science and Technology Diplomacy (1-2 /12/2015)
Towards Transformational and Inclusive Partnerships for Sustainable Future
Organized by:
CRDF GLOBAL, United Nations Economic and Social Commission for Western Asia (ESCWA) Technology Centre, Royal Scientific Society (RSS).
Place: Al-Ain, United Arab Emirates (U.A.E.).

TRAINING COURSES ATTENDED:

- (5/2016) Workshop Titled **"Chemical Security Seminar II"**
Organized by: Association of Arab Universities, US Department of State Chemical Security Program, Oak Ridge National Laboratory
Place: Amman, Jordan (9-12 / 5 / 2016)
- (8/2015) Workshop Titled **"Jordan Chemical Security and Emergency Preparedness Training"**
Organized by:
CRDF Global, US Department of State Chemical Security Program, National Center for Biomedical Research and Training
Place: Amman, Jordan (23-27 / 8 / 2015)
- (6/2015) Workshop Titled **"Chemical Security Workshop"** Organized by:
Association of Arab Universities, US Department of State Chemical Security Program, Oak Ridge National Laboratory
Place: Amman, Jordan (7-10 / 6 / 2015)
- (11/2011) Workshop Titled **"Patents in Biotechnology"**
Organized by:
Intellectual Property Directorate, Ministry of Industry-Jordan and European Patent Office (EPO)
Place: Amman, Jordan (28, 29/11/2011)
- (5/2011) Workshop Titled **"WIPO National Workshop on Patent Drafting"**
Organized by:
World Intellectual Property Organization (WIPO) and Jordanian Association of Pharmaceutical Manufacturers (JAPM)
Place: EL HASSAN BUSINESS PARK - Amman, Jordan (7/11/2010 to 13/5/2011)
- (2/2006) **Workshop "Practical and Legal Perspectives of Intellectual Property Rights Workshop"**
Organized by:
Royal Scientific Society in cooperation with World Intellectual Property Organization (WIPO) and Talal Abo-Ghazaleh Organization
Place: Royal Scientific Society - Amman, Jordan (6/2/2006 to 9/2/2006)
- (10/2002) **Workshop "Rules of Origin and Customs under European Union – Jordanian Association Agreement"** on the occasion of 10 years of fruitful Technical Cooperation

- Organized by:
Deutsche Gesellschaft Fur Technische Zusammenarbiet (GTZ) GmbH and Jordan Institution for Standards & Metrology (JISM)
Place: Le Royal Hotel - Amman, Jordan (29/10/2002)
- (10/2002) **Workshop “European Packaging Regulations and Standards”** on the occasion of 10 years of fruitful Technical Cooperation
Organized by:
Deutsche Gesellschaft Fur Technische Zusammenarbiet (GTZ) GmbH and Jordan Institution for Standards & Metrology (JISM)
Place: Le Royal Hotel - Amman, Jordan (30/10/2002)
- (10/2002) **Workshop “European Leislation, Directives and Standards”** on the occasion of 10 years of fruitful Technical Cooperation
Organized by:
Deutsche Gesellschaft Fur Technische Zusammenarbiet (GTZ) GmbH and Jordan Institution for Standards & Metrology (JISM)
Place: Le Royal Hotel - Amman, Jordan (31/10/2002)
- (6/2001) **Workshop “21st Century Quality Management in Jordan: Impacts of Jordanian – German Cooperation”** on the occasion of 10 years of fruitful Technical Cooperation
Organized by: Deutsche Gesellschaft Fur Technische Zusammenarbiet (GTZ) GmbH and Jordan Institution for Standards & Metrology (JISM)
Place: Inter-Continental Hotel-Amman, Jordan (5 to 7 /6/2001)
- (6/2001) **Tire Failures Analysis/ Determination**
Conducted by:
Japanese Expert **Mr. T. Miyamawari** from Japan International Cooperation Agency (JICA) /
Place: Amman, Jordan. (December 1999 to June/2001)
- (4/2001) **Quality Customer Service**
Organized by:
Jordan Institute of Management
Place: Amman, Jordan. (16 to 19 /4/2001)
- (11/2000) **International Laboratory Accreditation**
Organized by:
Laboratory Accreditation Department / Jordanian Institution for Standards and Metrology (JISM) in cooperation with GTZ Jordanian-German MSTQ Project
Place: Amman, Jordan. (11 to 16 /11/2000)
- (6/2000) **ISO/IEC 17025 Filed of Application and Requirements**
Organized by:
Laboratory Accreditation Department / Jordanian Institution for Standards and Metrology (JISM)
Place: Amman, Jordan. (20 to 22 /6/2000)
- (11/1999) **Techniques for Measuring Customer Satisfaction**
Organized by:
Lloy’s Register Quality Assurance (UK)
Place: Amman, Jordan. (2 /11/1999)
- (9/1999) **Good Laboratory Practice (GLP)**
Organized by:
Future International Group for Marketing Services .
Place: Amman, Jordan. (25 to 27 /9/1999)
- (7/1999) **Measurement Uncertainty in Analytical Sciences**
Organized by:
Jordanian Institution for Standards and Metrology (JISM) and Deutsche Gesellschaft fur Technische Zusammenarbeit (GTZ) GmbH Jordanian – German MSTQ Project.
Place: JISM, Amman, Jordan (26-28 /7/1999)

- (4/1999) **Technical Assessment of Competence of Laboratories** - Modular Training Concept for Establishing Harmonized Conformity Assessment System (Modules 6,8 and 18) – BAM-MECAS/AMOS-Programme
Organized by: Jordanian Institution for Standards and Metrology (JISM) and Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH Jordanian – German MSTQ Project.
Place: Royal Scientific Society Amman, Jordan (18 to 22/4/1999)
- (4/1998) **X-Ray Spectroscopy (XRF/XRD) Product Training**
Organized by:
Philips Analytical and Royal Scientific Society.
Place: Royal Scientific Society Amman, Jordan. (28 to 29/4/1998)
- (4/1998) **X-Ray Spectroscopy Course**
Organized by:
Philips Analytical and Royal Scientific Society.
Place: Royal Scientific Society Amman, Jordan. (24 to 25/4/1998)
- (12/1996) **Quality Internal Auditing**
Organized by:
Jordan Technical Consultants Group (Jordan) and Progress Training International (England).
Place: Amman, Jordan. (15-16/12/1996)
- (5/1996) **Composite Material Technology**
Organized by:
Jordan University of Science and Technology and Concordia University (CANADA).
Place: Irbid, Jordan. (26 to 30/5/1996)
- (10/1995) **Technology Transfer and Technology Contract Negotiation** (Regional Workshop)
Organized by:
United Nations Industrial Development Organization (UNIDO), United Nations Economic and Social Commission for Western Asia (ESCWA) and the Higher Council for Science and Technology of Jordan.
Place: Amman, Jordan. (16 to 19/10/1995)

AREA OF SPECIALIZATION:

R&D/Testing	* *	Research & Development of Novel Products related to Sustainable Energy Products and materials to improve human health and reduce human suffering.
Reverse Engineering	* * *	Unknown Chemicals Identification. Trace Contamination in Any Material: Detection, Identification and Quantification. Product Reverse Engineering and Deformulation , Analysis and Characterization.
Problem Solving	* *	Industrial Problem Solving. Determination of Causes of Failure for Damaged or Malfunctioning Products.
Quality Management	* * * *	ISO 9000/ Quality Management/ Quality Assurance/ Internal Auditing. Laboratory Accreditation (ISO 17025). Third Party Inspection. Development of Quality Control Agreements.
Safety & Health	* * * *	Plastics in Contact with Food (Health Suitability). Materials in Contact with Food (Health Suitability). Toy Safety and Public Parks Play Equipment Safety. Hazard Risk Analysis and Industrial Safety. Cancer Causes and Prevention.
TECHNICAL SKILLS:	Spectroscopic:	UV-Vis, Fluorescence, FT-NMR, FT-IR, Phosphorescence

Analytical	LC-MSMS, GC-MS, GPC, HPLC, GC-MS, VPO, Viscometry, FTIR, XRD, XRF
Thermal	DSC, TGA, TMA
Morphology	Optical Polarized and Electron Scanning Microscopy
Computer	Power Point, HTML, Molecular Modeling, BASIC, FORTRAN, MINITAB, Graphic, Excel, Spread sheet and Word Processing Software Packages.

ADVANCED COURSES:

Photochemistry/Photophysics of Polymers, Liquid Crystals, Microscopy and Morphology of Polymers, Polymer Surface Science, Infra-Red Spectroscopy of Polymers, Applied Statistics, Organic Reactions, Polymer Reactions, Theory of Organic Chemistry, Chemical Kinetics.

SOME of the WORK DONE/BEING DONE at the ROYAL SCIENTIFIC SOCIETY

A) General

- 1) **Chairman of Technical Committee** responsible for revising Jordanian Standard on "Vehicle Tires".
- 2) **Established Quality System and Obtained International Certification for Center and Laboratories according to International and National Quality Requirements (see below for details)**

Quality System	Center / Lab.	Certification Body	Date
ISO 9000	Mechanical Design and Technology Center (MDTC)	LLOYD'S REGISTER	2/2001
ISO 17025	Metallography Lab.	UKAS /United Kingdom & JLAS / Jordan	2/2000 8/2000
ISO 17025	Plastics and Rubber Lab.	German Accreditation System for Testing (DAP) / Germany & JLAS / Jordan	4/2001 9/1999

- 3) **Written the Quality Manuals** for the Mechanical Design and Technology Center (MDTC), Metallography and Heat Treatment Laboratory and Plastics and Rubber Laboratory, which resulted in obtaining certification and was recently Internationally Accreditation as described above.
- 4) **Participated in writing National Procedure for Dealing with Foreign Materials in Soft Drinks** (Adopted by Jordan's High Health Council on 30/11/2000).
- 5) **Introduced Tampering Investigation /Testing for Soft Drink Products in Jordan and Royal Scientific Society in 1999.**

- 6) **Court Appointed Expert** in the Field of:
 - 1- Product Tampering.
 - 2- Loss Adjustment
 - 3- Determination of: Cause of Failure and Compliance to Specifications/Tender Documents for 8 Inch Epoxy Reinforced Pipes used by Chemical Factor (International Court of Commerce Appointed Expert).
- 7) Participating in **Revising the Quality Manual of the Royal Scientific Society** and RSS Personnel Evaluation Procedure.
- 8) Participating in Performing Internal Quality Audits on RSS Laboratories and Centers (**Quality Auditor**).
- 9) **Member of National Committees** in-charge of writing **Technical Specifications** for the following Products:
 - 1 - Underground Plastic Conduits (U-PVC) for Telecommunication Cables
 - 2 - Vehicle Tires
 - 3 - Cross-linked Polyethylene Pipes for Hot Water Service
 - 4 - Baby Dummies
 - 5 - Tooth Brushes
 - 6 - Plastics use in Food and Pharmaceuticals Packaging
 - 7 - Sterile Hypodermic Syringes for Single Use
- 10) **Trained Custom's Officers** in the Analysis and Identification of Plastics and Rubber Materials using different techniques such as Differential Scanning Calorimetry (DSC), Fourier Transform Infrared spectroscopy (FT-IR) ..etc. in 2001 and 1997.
- 11) Tested and evaluated the
 - 1- Extent of **Migration of Toxic Material** (Formaldehyde) from Melamine Kitchenware.
 - 2- Suitability of Color Master Batch for Coloring Food Containers.
 - 3- Cause of Failure of Carbonated Beverage Bottles (PET).
 - 4- Source of Foreign Matter Contamination in Soft Drink (carbonated) Beverages (Head of Investigation), also member of National Supervisory Committee for the Soft Drinks Industry on the subject of Foreign Matter Contamination in Soft Drink (carbonated) Beverages (1999-present).
- 12) Evaluated **Patent Applications** in the following Fields:
 - 1- Plastics and Plastic Products.
 - 2- Liquefied Petroleum Gas (LPG) Filling Equipment.
 - 3- Photoresists-Image Capturing/Printing Materials.
 - 4- Three Phase Magneto Air-Lift Reactor Using Transverse Magnetic Field.
 - 5- Production of Activated Carbon from Olive Seeds.
- 13) Participated in Problem solving in the Potassium Chloride (Industrial Grade) Manufacturing Plant in the Arab Potash Company
- 14) Made Replacement Parts for Medical Operation Table.

- 15) Member of Technology Committee / Jordan Engineers Association

B) Insurance Related:

- 1) **Surveyed** the remains of **two** burnt Stores selling Agricultural Products
- 2) Evaluated the **Cause of Failure** for:
 - 1- Children Slide (Playground slide).
 - 2- Pressure Sensitive Adhesive-Coated Tapes (Manufacturing or Shipping).
 - 3- Children School Utensils Box (Manufacturing or Shipping).
 - 4- Fire Fighting Hoses (Fire Brigade Hoses).
 - 5- PET Carbonated Soft Drink Bottles.
- 3) Head of Investigation for the Following:
 - 1 - Damaged Truck Tires (Damage Caused by Fire in the Port of Aqaba).
 - 2 - Damaged Medicine Capsules (Gelatin Capsules).
 - 3- Contaminated Water Pipes (Deatermined contaminants and recommended decontamination procedures).
- 4) Identified (and determined the source) of a Chemical which was Responsible for Bad Taste in Bottled Mineral Water.

(8/1987- 5/1993) University of Connecticut, Storrs, Connecticut, U.S.A.

Research Assistant:

- * **Discovered very efficient catalyst** for the production of polyimides. Polyimides are high temperature stable polymers used in the manufacture of **high technology products**, such as, high temperature composites and electronic integrated circuits (IC's), as well as, in the production of basic materials for every day use, such as, high temperature enamels for Winding Wires, wires used in electric motors and electric generators.
- * **Discovered** that removal of **Traces of water** from the solvent in which the reaction is performed Greatly increases the speed of the reaction (Polyimide Formation).
- * **Established improved reaction conditions leading to considerable savings** (both energy and time) in polyimides manufacture via the chemical imidization process.
- * **Improved on, and given new evidence for reaction mechanism.**
- * Synthesized and characterized many new model imide compounds.
- * **Performed detailed studies** of the kinetics of chemical imidization.
- * Computer simulated the chemical structures using molecular modeling.
- * Experience in **designing new investigative techniques.**

Teaching Experience (Graduate Courses):

- * Assisted in Teaching the following graduate courses;
 - Photochemistry / Photophysics of Polymers
 - Microscopy and Morphology of Polymers

(9/1985 -7/1986) **State University of New York (SUNY), College at Fredonia, Fredonia, New York, U.S.A.**

Research Assistant: Synthesis and Characterization of a Series of Poly(methyl-methacrylate-vinylidene chloride) copolymers.

Teaching Experience (Under-Graduate Courses):

Assisted in Teaching Analytical Chemistry Laboratory (Two Courses).

PROFESSIONAL MEMBERSHIPS:

American Association for the Advancement of Science

Jordainan Chemical Society (JCS) / Jordan

PROFESSIONAL PUBLICATIONS:

- 1) **Polymorphism and isomorphism in trans-bis(2,5-diiodopyridine)dihalocopper(ii) complexes: theoretical and crystallographic studies**, New Journal of Chemistry 2022, DOI: 10.1039/D2NJ03373A Manal I. Alwahsh; Firas F. Awwadi; Mohammed H. Kailani
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