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**NATIONALITY: Jordanian**

### **OBJECTIVE**

To participate and contribute as a member in a team, where my experience may be used in order to help achieving the goals of the employer.

### **PROJECTS AND EXPERIENCE**

Proficient and able to engage in any research that is related to the following:

- ✓ Polymer characterisation of electronically conducting polymers by different spectroscopic techniques like UV-VIS, Fluorescence, IR, and measurements of electrical properties.
- ✓ Thermodynamics of adsorption.
- ✓ Theoretical chemical calculations, study of different tautomeric systems, Quantum chemical calculations on conducting polymers.
- ✓ Have good knowledge in computer software that is necessary for a Chemist to publish a book or paper on his own.

### **EDUCATION**

- Ph.D. in Chemistry, University of Wales, Cardiff, United Kingdom, 1996.
- M.Sc. in Chemistry, Middle East Technical University (METU), Ankara, Turkey, 1984
- B.Sc. in Chemistry, METU, 1982.
- High School, scientific stream, Jordan, 1977.

#### **Title of the Ph.D. Thesis:**

*“Detection and Characterisation of Polyene Sequences in Polymeric Materials”*

#### **Title of the M.Sc. Thesis:**

*“Determination of Lead by Ion Selective Electrodes in Samples with High Iron and Copper Content”*

### **WORK HISTORY**

- Staff member, college of science, Dept. of Chemistry, Mutah University, Jordan.
- Head of the department of Chemistry, Sept 1, 2016

- Staff member, Taibah University, college of applied sciences, Almadeenah Almunawwarah, KSA, 2010/2011 and 2011/2012.
- Vice dean for the College of Science, Mutah University, Academic year 2009/2010.
- Professor, Mu'tah University, Department of Chemistry since 2009.
- Associate professor, Mu'tah University, department of chemistry since, 2004, on sabbatical leave for the academic year 2005/2006 at al-Husein University-Jordan.
- Head of the Chemistry department in the period from Sept 1, 2004 till Aug. 31, 2005.
- Assistant professor at Mu'tah University, department of chemistry since September 1996.
- Research and teaching assistant, Mu'tah University, department of chemistry in the period from Dec. 1986 until September 1992.

### **PUBLISHED WORK**

- Hamzeh S. M. Al-Omari, *AM1 Theoretical Analysis on the Effect of Some Substituents (X) at Carbonyl-Carbon Position of the Formamide-Formamidic Acid Tautomerization System.* (X= F, Cl, Br, I, CN, NO<sub>2</sub>, CH<sub>3</sub> and CF<sub>3</sub>), Acta Chim. Slov., 56, 4, 826-834, **2009**.
- Hamzeh S. M. Al-Omari, *Effect of Different substituents on Uracil and it's 2-Hydroxy-γ-4-oxo Enol Tautomer-A Theoretical Study*, Z. Naturforsch., 63a, 693-702, **2008**.
- Hamzeh S. M. Al-Omari, *Effect of Different substituents on the Amini-oxo/Amino-Hydroxy Cytosine Tautomeric System*, J. Applied Sciences 8(15): 2659-2668, **2008**.
- Reyad A. Shawabkeh, Omar A. Al-Khashman, Hamzeh S. Al-Omari, and Ali F. Shawabkeh, *Cobalt and Zinc removal from aqueous solution by chemically treated bentonite*, Environmentalist, 27, 357-363, **2007**.
- Hamzeh Al-Omari, *Evaluation of the Thermodynamic Parameters for the Adsorption of Cadmium Ion from Aqueous Solutions*, Acta Chim. Slov., 54, 611-616, **2007**.
- Tayel El-Hasan, Mufeed Batarseh, *Hamzeh Al-Omari*, Anf Ziadat, Abdullah El-Alali, Farah Al-Naser, Bruce W. Berdanier, and Anwar Jiries, *The distribution of Heavy Metals in Urban Street Dusts of Karak City, Jordan*, Soil and Sediment Contamination, 15: 357-365, **2006**.
- Hamzeh S. M. Al-Omari, *Semiempirical Method (MNDO) for the Evaluation of the Effect of Different Substituents at the Imine-Carbon Position on the Acetaldemine-Vinylamine Tauotomerization and Comparison to the Substitution at α-Position.* Z. Naturforsch, 59a, 987-996, **2004**.
- Hamzeh S. M. Al-Omari, *Theoretical Study of the effect of Different Substituents on the Acetaldimine-Vinylamine Tautomeric System.* Z. Naturforsch., 59a, 382-388 (2004).
- Hamzeh Al-Omari, *Study of the Adsorption of (Ni) and Cu(II) by Tripol*, Mutah Lil-Buhuth wad-Dirasat, Vol. 18, No. 1, 77-94, **2003**.

- Tayel El-Hasan, Hamzeh Al-Omari, Anwar Jiries, Farah Al-Nasir, *Cypress tree bark as an indicator for heavy metal pollution in the atmosphere of Amman City, Jordan*. *Environment International*, 28, 513-519, **2002**.
- E. D. Owen and Hamzeh S. M. AL-Moh'd, *Fluorescent Products from Polyacetylene*, *Polymer Degradation and Stability*, 56, 235, **1997**.
- E. D. Owen and Hamzeh S. M. AL-Moh'd, *Polyene Sequences Iodinated Polyisoprene*, *Polymer*, 38, 15, 3533, **1997**.

## **COURSES TOUGHT**

### ***I. Physical Chemistry Courses:***

1. Physical Chemistry (241): Ideal and real gases, the first law of thermodynamics, concepts and machinery, the second law of thermodynamics, basic concepts and machinery, changes of state and physical transformations of pure substances, and of simple mixtures, chemical equilibrium.
2. Physical Chemistry (342): Equilibrium electrochemistry, ion transport and molecular diffusion, rates and mechanisms of chemical reactions, introduction to adsorption and surface chemistry.
3. Practical Physical Chemistry (343): Determination of enthalpy of vaporization by dynamic method., determination of enthalpy of vaporization by calorimetric method, molecular weight determination by freezing point depression, determination of heat of neutralization, thermodynamic parameters of Daniel cell, determination of critical solution temperature. adsorption from solution, electrical conductance: a) Strong and weak electrolytes b) solubility product of a sparingly soluble salt. partial molal volume, kinetic study: hydrolysis of sucrose by polarimetric method. kinetic study: acid-catalyzed hydrolysis of methyl acetate (effect of temperature), azeotropic mixture.
4. Physical Chemistry (441): Quantum Theory-Introduction and principles, failures of classical mechanics, Schrodinger equation, wavefunctions, operators and observables, uncertainty principle, particle-in-a-box, degeneracy, vibrational and rotational motion, hydrogenic atoms, spectral transitions and selection rules, rotational and vibrational spectra, electronic transitions, fluorescence and phosphorescence, Jablonski diagram, lasers with examples, aspects of statistical thermodynamics, Boltzman distribution, partition functions.
5. Special Topics in Physical Chemistry (442): (Elective Course), Introduction to x-ray and crystal structural analysis, lattices and unit cells, Miller indexes, Bragg's law, interpretation of x-ray diffraction patterns with examples, introduction to radiochemistry, types of nuclear reactions, kinetics of radioactive decay, dating, binding energy, nuclear fusion and fission, energy calculations of nuclear reactions, the kinetic theory of gases, basic assumptions, pressure of a gas, Maxwell-Boltzman distribution, root mean square speed, most probable and mean speeds, collision frequency and collision density, mean free path, collisions with walls and surfaces, effusion and effusion cell, Knudsen method, introduction to conducting polymers, electronic and ionic conductivities, band theory, conductors, semi-conductors and insulators conjugated polymers, perile distortion, solitons, polarons, bipolarones, doping, polyacetylene.
6. Quantum Chemistry (742): Masters-Level Course: mathematical background (matrices, vectors, complex numbers, polar coordinates and graphs), old quantum mechanical theory and Bohr's model, modern quantum mechanical theory (postulates of quantum mechanics, Schrödinger equation, rigid rotor, harmonic oscillator, Born-Oppenheimer approximation, hydrogen atom, approximation methods (Variation and perturbation methods, with examples), atoms (multi-electronic atoms, Hartree method, pauli-exclusion principle, Slater determinant,

Hartree-Fock method), molecules (MOT and VBT, hydrogen molecule, hydrogen-molecule ion ( $\text{H}_2^+$ ), conjugated  $\pi$ -systems (Hückel approximation) with examples.

## **II. General Chemistry Courses:**

1. Chemistry (101): Chemical foundation, atoms, molecules and ions, stoichiometry, types of chemical reactions, solution stoichiometry, atomic structure and periodicity, bonding (general concepts, covalent bonding and MOT).
2. Chemistry (102): Gases, thermochemistry, liquids and solids, properties of solutions, chemical kinetics, chemical equilibrium, applications of aqueous solutions: acids and bases, solubility equilibria, electrochemistry.
3. Chemistry (110): This course is specially designed for medical laboratory students.  
Chemical foundation, atoms, molecules and ions, stoichiometry, types of chemical reactions, solution stoichiometry, gases, chemical equilibrium in aqueous solutions, acid-base and solubility equilibria, electrochemistry.
4. General Chemistry Laboratories (105) and (106)

## **III. Mathematics for Chemistry Students:**

(I gave this course at Al-Husein University/Jordan, There is no similar course for Chemistry students at Mutah University).

Equations, functions and graphs, complex numbers, matrices and determinants, vectors, polar coordinates, polar equations, differential calculus, integral calculus, differential Equations with chemistry examples.