Sanaa Saad Abdulaziz AlAbbad

Lecturer

Personal Data

Nationality | Saudi
Date of Birth | 07/23/1979
Department | Chemistry
Official UoD Email | sabbad@iau.edu.sa
Office Phone No. | 37063

Language Proficiency

Language	Read	Write	Speak
Arabic	Excellent	Excellent	Excellent
English	Excellent	Excellent	Excellent

Academic Qualifications (Beginning with the most recent)

Date	Academic Degree	Place of Issue	Address
2018	PhD in Chemistry	University of Montana	Missoula, MT, USA
2007	MS in Chemistry	King Faisal University	Dammam, Saudi Arabia
2001	BS in Chemistry	College of Science in Dammam	Dammam, Saudi Arabia

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

PhD	Quantum Mechanics Investigation of the Photophysical Properties of Ruthenium(II)-Based Complexes Combined with the Development of their Force Field Parameters Using Molecular Mechanics and Molecular Dynamics Simulation
Master	Computational Study of Structural Stability, Rotational Barriers and Vibrational Analyses of Some Carboxylic Acids

Professional Record: (Beginning with the most recent)

Job Rank	Place and Address of Work			Date
Lecturer	Chemistry Department	Imam Abdulrahman bin Fasial University (formally known as University of Dammam)	Dammam, Saudi Arabia	March 2010 – Present
Research Assistant	Departement of Chemistry and Biochemistry	University of Montana	Missoula, MT, USA	August2012- August 2018
Chemistry Teacher	High School	King Fahad University Petroleum and Minerals High School	Dhahran, Saudi Arabia	August 2005 – February 2010
Chemistry Teacher	High School	Education Eligibility Schools	Alkhobar, Saudi Arabia	August 2001 – June 2004

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
	Badawi H.M., Al-Saadi A.A., Al-Khaldi M.A.A., Al-Abbad S.A., Al-Sunaidi Z.H.A.	Potential energy scans and vibrational assignments of cyclopropanecarboxylic acid and cyclopropanecarboxamide	*Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy*, (71A), 1540–1546 (2008)
	Badawi H.M., Al-Khaldi M.A., Al-Abbad S.S., Al-Sunaidi Z.H.	Rotational barriers in monomeric $CH_2=CX-COOH$ and $CH_2=CX-CONH_2$ (X is H or CH_3) and vibrational analysis of methacrylic acid and methacrylamide.	*Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy*, (68A) 432–442 (2007)
	Badawi H.M., Al-Khaldi M.A., Al-Sunaidi Z.H.A., Al-Abbad S.S.A.	Conformational properties and vibrational analyses of monomeric pentafluoropropionic acid CF_3CF_2COOH and pentafluoropropionamide $CF_3CF_2CONH_2$	*Canadian Journal of Analytical Sciences and Spectroscopy*, (52), 252-269 (2007)

Current Researches

#	Research Title	Name of Investigator(s)
1	*Trans* Influence and Substituent Effects on the HOMO-LUMO Energy Gap and Stokes Shift in Ru Mono-Diimine Derivatives	Sanaa AlAbbad, Tova Sardot, Oliko Lekashvili, Daniel Decato, Francesco Lelj, J.B. Alexander Ross, Edward Rosenberg Submitted to *J. Organomet. Chem.* (in reviewing process)
2	Computational Study of the Emission Energy in Ru-phenanthroline Based Complexes: Control HOMO-LUMO Energy Gap, Influence of Electronic Delocalization, and Formation of Metal Centered State	Sanaa AlAbbad, Oliko Lekashvili, Daniel Decato, J.B. Alexander Ross, Edward Rosenberg Submitted to *J. Organomet. Chem.* (in reviewing process)

Research interest

#	Research Title
1	Investigation of the most probable catalytic mechanism for the active site of mammalian adenylyl cyclase based on density functional theory calculation using DFT.
2	Investigating molecular structures and electronic states of a series of ruthenium complexes based on density functional theory and the time dependent density functional theory DFT/TD-DFT.
3	Developing force field parameters for Ru-bpy based complex using molecular mechanics (MM) combined with molecular dynamics (MD) that can help to explain critical aspects of the optical

	phenomena of Ru-bpy based complexes in solution and biological system.	
4	Green chemistry: Investigation of the mechanisms of the charge transport in MOF materials and design a model using an appropriate guest molecule which is hypothesized to enhance the conductivity of the materials in order to be used in electrochemical devises in the future.	

Contribution to Scientific Conferences and Symposia

#	Conference Title	Place and Date of the Conference	Extent of Contribution
1	The 6th annual CoBRE research Retreat	University of Montana, Missoula, MT (September 2017)	Theoretical analysis of the triplet excited states of ruthenium mono-diimine and bioconjugated complexes: Effects of trans ligands and ionization Sanaa AlAbbad: poster presentation
2	Department Seminar	University of Montana, Missoula, MT (January 2017)	Theoretical Investigation of the Charge Transport Mechanisms in Porphyrinic Zirconium Metal-Organic Frameworks Sanaa AlAbbad: oral presentation
3	American chemical society, Northwest Regional Meeting (NORM 2016)	Oregon State University, Corvallis, OR (June 2016)	Theoretical analysis of the triplet excited states of ruthenium mono-diimine and bioconjugated complexes: Effects of trans ligands and ionization Sanaa AlAbbad: poster presentation
4	The 5th annual CoBRE research Retreat	University of Montana, Missoula, MT (September 2016)	Theoretical analysis of the triplet excited states of ruthenium mono-diimine and bioconjugated complexes: Effects of trans ligands and ionization Sanaa AlAbbad: poster presentation
5	American physical society, March Meeting 2016	Baltimore, Maryland (March 2016)	Recent Advances in Density Functional Theory (DFT) and Applications to Chemical Physics Attendance and open discussion
6	The 4th annual CoBRE research Retreat	University of Montana, Missoula, MT (September 2015)	Theoretical analysis of the triplet excited states of ruthenium mono-diimine and bioconjugated complexes: Effects of trans ligands and ionization Sanaa AlAbbad: poster presentation
7	Foundations of Molecular Modeling and Simulation (FOMMS 2015)	The Resort at the Mountain (Mt. Hood), Oregon (July 2015)	The Computational Molecular Science and Engineering Forum (CoMSEF) of the American Institute of Chemical Engineers (AIChE) and the AIChE

#			
			Nanoscale Science & Engineering Forum Attendance and open discussion
8	American chemical society, Northwest Regional Meeting (NORM 2014)	The University of Montana, Missoula, MT (June 2014)	Theoretical Study of the Catalytic Mechanism of Mammalian Adenylyl Cyclase Sanaa AlAbbad: poster presentation
9	The 3rd annual CoBRE research Retreat	The University of Montana, Missoula, MT (September 2013)	Theoretical Study of the Catalytic Mechanism of Mammalian Adenylyl Cyclase Sanaa AlAbbad: poster presentation

Membership of Scientific and Professional Societies and Organizations

- Saudi Chemical Society 2010-present
- Golden Key International Honor Society 2012-present
- American Chemical Society 2015-present
- American Physical Society 2015-present
- The Extreme Science and Engineering Discovery Environment (**XSEDE**) 2015-present

Teaching Activities

Undergraduate

#	Course/Rotation Title	No./Code	Extent of Contribution (no. of lectures/Tutorials. Or labs, Clinics)
	Organic chemistry		Lab
	Introduction into analytical chemistry		Lab
	Instrumentals chemical analysis	-	Lab
	General chemistry	-	Lab
	Electrochemical chemistry	-	Lab

Student Academic Supervision and Mentoring

#	Level	Number of Students	From	to
1	Undergraduate student (software training)	1	June 2014	August 2014

Workshops and training:

#	
1	Personality Types: General Organization for Technical Education and Vocational Training , Dhahran, 2006.
2	Presentation Skills and Presentation: General Organization for Technical Education and Vocational Training, Dhahran, 2006
3	The Art of Listening Skills of Dialogue: Organization of Home Advice in Jeddah, 2006.
4	Integration of Thinking Skills Curriculum TBL, Sultan bin Abdul Aziz Center for Science and Technology, 2007

5	Supercomputing for Everyone Series: Performance Tuning Summer School, Texas Advanced Computing Center, Austin, TX (August 2015)
6	Writing a successful XSEDE allocation proposal, XSEDE training, 2015.
7	R HPC training, 2015.
8	Express introduction to Linux scripting, XSEDE training, 2016.
9	F5 Tornado visualizations with VAPOR, XSEDE training, 2016
10	Introduction to scientific visualization, XSEDE training, 2016
11	OpenMP programing, XSEDE training, 2016.
12	Mathematics in quantum chemistry, Virtual Winter School on Computational Chemistry, 2016
13	Strong correlation models, Virtual Winter School on Computational Chemistry, 2016
14	Molecular excitation energies with range-separated DFT, Virtual Winter School on Computational Chemistry, 2016
15	Unraveling photochemical mechanisms with computational methods, Virtual Winter School on Computational Chemistry, 2016
16	Optimizing performance with OpenMP, XSEDE training, 2017.

Committee Membership

#	From	To	Position	Organization
	2010	2011	Member	The organizing committee of conducting final exams in the college of since, University of Dammam
	2018	Present	Head	Committee on the Standard4: learning and teaching

Volunteer Work

#	From	To	Type of Volunteer	Organization
	August 2016	June 2018	Organization the party of the Islamic holydays	Muslim student association, UMT, Missoula, MT
	2010	2010	Organizing graduation party for chemistry students	Chemistry department, King Faisal University, Dammam
	2010	2010	Organized activities to integrate students with the deaf and people with Darwin's syndrome	King Fahad Petroleum and Minerals High School

	2009	2009	Worked as sign language translator at science festival	King Fahad Petroleum and Minerals High School

Personal Key Competencies and Skills: (Computer, Information technology, technical, etc.)

1	Extensive experience with software code Gaussian, AMBER, and cpptraj
2	Extensive experience using UNIX/Linus based systems
3	Experience in using Gaussian view, VMD, Avogadro, Jmol, GaussSum, Xmgrace, and AIM
4	Experience in using spectro analytical instrument: spectromax
5	Professional in academic use of Microsoft office
6	Extensive experience using all library and online academic resources

Personal Key Competencies and Skills:

1	Professional in academic writing, writing proposal, grants, and papers
2	Professional in scientific presentation and poster
3	Professional communication skills and networking
4	Professional in research publishing process
5	Working on self-improvement
6	Very committed, responsible and hard worker

Last Update

11/21/2018