



Zainab Husain Abdulaziz Alsunaidi

Assistant Professor

Personal Data

Nationality | Saudi

Date of Birth | 22/September/1981

Department | Chemistry

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Office Phone No. | 3337058

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
2017	PhD in Chemistry	Michigan State University	East Lansing, MI, USA
2009	MS in Chemistry	Imam Abdulrahman Bin Faisal University (Formerly known as King Faisal University)	Dammam, Saudi Arabia
2003	BS in Chemistry	Imam Abdulrahman Bin Faisal University (Formerly known as College of Science in Dammam)	Dammam, Saudi Arabia

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

PhD	Prediction of structural and thermochemical properties: computational strategies for small molecules to periodic systems. Advisor: prof. Angela k. Wilson
Master	Computational study of structural stability, rotational barriers and analysis of vibrational spectra of some amides. Advisor: prof. Hassan m. Badawi

Professional Record: (Beginning with the most recent)

Job Rank	Place and Address of Work			Date
Assistant Professor	Chemistry Department	Imam Abdulrahman bin Faisal University (formally known as University of Dammam)	Dammam, Saudi Arabia	2018-present
Research Assistant	Chemistry Department	Michigan State University	East Lansing, Michigan, USA	Jun 2016-May 2017
Research Assistant	Chemistry Department	University of North Texas	Denton, Texas, USA	May 2014-May 2016



Job Rank	Place and Address of Work			Date
Lecturer	Chemistry Department	Imam Abdulrahman bin Faisal University (formally known as University of Dammam)	Dammam, Saudi Arabia	2009-2018
Teaching Assistant	Chemistry department	King Faisal University	Dammam, Saudi Arabia	2008-2009

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
1	Alsunaidi. Z. H. A.; Cundari, T. R.; Wilson. A. K.	Towards a Better Rational Design of a Catalytic Surface for the Direct Synthesis of Aniline: A DFT Study.	ACS Omega. 2017, 2(7), 3214-3227.
2	Alsunaidi. Z. H. A.; Wilson. A. K.	DFT and Composite Methods: Investigation of Oxygen Fluoride Species.	Comp. Theor. Chem. 2016, 1095, 71-82.
3	Badawi, H. M.; Al-Saadi, A.A.; Al-Khalidi, M. A. A.; Al-Abbad, S. S. A.; Al-Sunaidi, Z. H. A.	Potential Energy Scans and Vibrational Assignments of Cyclopropanecarboxylic acid and Cyclopropanecarboxamide.	Spectrochim. Acta, Part A 2008, 71, 1540.
4	Badawi, H. M.; Al-Khalidi, M. A. 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 $CF_3CF_2CONH_2$.	Can. J. Anal. Sci. Spectrosc. 2007, 52, 5.
5	Badawi, H. M.; Al-Khalidi, M. A. A.; Al-Abbad, S. S. A.; Al-Sunaidi, Z. H. A.	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.	Spectrochim. Acta, Part A 2007, 68, 43.

Current Researches

#	Research Title	Name of Investigator(s)
1	Enthalpies of Formation for Organoselenium Compounds via Several Thermochemical Schemes	Alsunaidi. Z. H. A.; Wilson. A. K. Submitted to J. Phys. Chem. A. (In reviewing process)

Research Interests

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1	Catalyst design: Conducting research on heterogeneous catalyst activity using first principles plane wave density functional theory; Studying the direct amination of benzene on surfaces; Examining adsorption energies and structures, possible reaction pathways, catalyst activity, electronic density of states.



2	Atmospheric Thermochemistry: Investigating structures and accurate thermochemical properties of species involved in atmospheric reactions using <i>ab initio</i> composite methods and density functional theory; Examining the effect of basis sets size, spin contaminations, and electron lone pairs; Determining reliable methods for these species.
3	Physical Organic chemistry: organoselenium thermochemistry; Calculating thermochemical energetics of organoselenium compounds using hypohomodesmotic reaction schemes via <i>ab initio</i> composite methods; Investigating different mechanisms of some important chemical reactions involving Organoselenium compounds
4	Computational methods for lanthanides and actinides thermochemistry
5	Green Chemistry: converting biomass to chemicals

Contribution to Scientific Conferences and Symposia

#	Conference Title	Place and Date of the Conference	Extent of Contribution
1	"Chemistry in our life" Symposium and exhibition sponsored by Saudi Chemical Society and the Chemistry club	College of science at Imam Abdulrahman bin Faisal University, Dammam, Saudi Arabia (Jan 2018)	Attendance and organization
2	Talent Enrichment Program	College of science at Imam Abdulrahman bin Faisal University, Dammam, Saudi Arabia (Jan 2018)	"computational modelling in chemistry" Zainab H. A. Alsunaidi, oral presentation
3	Scientific Research committee in the chemistry department	College of science at Imam Abdulrahman bin Faisal University, Dammam, Saudi Arabia (March 2018)	"Application of several computational strategies to small molecules and periodic systems" Zainab H. A. Alsunaidi, oral presentation
4	"Chemistry of petroleum industry and environment" First Gulf Chemists Symposium	Al Khobar Le Meridien Hotel, Al Khobar, Saudi Arabia (April 2018)	Attendance
5	The 49th Annual Midwest Theoretical Chemistry Conference	East Lansing, Michigan (June 2017).	"Enthalpies of Formation for Organoselenium Compounds via Several Thermochemical Schemes." Zainab H. A. Alsunaidi and Angela K. Wilson; Poster presentation
6	Physical seminar series	Chemistry department, Michigan State University, East Lansing, Michigan. (Jan 2017).	"Towards a Better Design of a Catalytic Surface For the Direct Synthesis of Aniline: A DFT Study" Zainab H. A. Alsunaidi. Oral presentation
7	the 49 th American Chemical Society DFW Meeting-in-Miniature	Texas Woman's University, Denton, Texas (April 2016).	"Application of Thermochemical Schemes for the Prediction of Enthalpies of Formation of Organoselenium Compounds." Zainab H. A. Alsunaidi and Angela K. Wilson; Oral presentation
8	The 26 th Austin Symposium on Molecular Structure	Dallas, Texas (March 2016).	"DFT and Ab Initio Composite Method Investigations of Oxygen Fluorides and Related Hydrides." Zainab H. A.



#	Conference Title	Place and Date of the Conference	Extent of Contribution
			Alsunaidi and Angela K. Wilson; Poster presentation
9	the 251 st ACS National Meeting	San Diego, California (March 2016).	"Catalytic activity of the Ni-surface on the "green" synthesis of Aniline" Zainab H. A. Alsunaidi, Thomas R. Cundari, and Angela K. Wilson; Oral presentation
10	The 249 th ACS National Meeting, Denver, Colorado (March 2015).	Denver, Colorado (March 2015).	"DFT and Ab Initio Composite Method Investigations of Oxygen Fluorides and Related Hydrides" Zainab H. A. Alsunaidi and Angela K. Wilson; Poster presentation
11	A Celebration of Graduate Student Research	University of North Texas, Denton, Texas (May 2014).	"Computational Investigations of the Amination of Benzene on the Ni(111) Surface" Zainab H. A. Alsunaidi; Oral presentation
12	The 47 th American Chemical Society DFW Meeting-in-Miniature	Texas Wesleyan University, Fort Worth, Texas (April 2014).	"Computational Investigations of the Amination of Benzene on the Ni (111) Surface." Zainab H. A. Alsunaidi, Thomas R. Cundari, and Angela K. Wilson; Oral presentation
13	The 25 th Austin Symposium on Molecular Structure	Dallas, Texas (March 2014).	"Theoretical study of direct amination of benzene on a Ni(111) surface." Zainab H. A. Alsunaidi, Thomas R. Cundari, and Angela K. Wilson; Poster presentation
14	The 247 th ACS National Meeting, Dallas, Texas (March 2014).	Dallas, Texas (March 2014).	"Theoretical study of direct amination of benzene on a Ni(111) surface." Zainab H. A. Alsunaidi, Thomas R. Cundari, and Angela K. Wilson; Poster presentation
15	Monthly CASCaM Post-Doc and Graduate Student Research Presentations	University of North Texas, Denton, Texas (November 2013).	"Theoretical Investigations of Fluorine Oxides Using <i>Ab Initio</i> Composite Methods, M06, and M06-2X." Zainab H. A. Alsunaidi. Oral presentation
16	Departmental seminar	University of North Texas, Denton, Texas. (April 2013)	Theoretical Investigations of FO _x and FO _x H, x=1-3, using Ab Initio Composite Methods, M06, and M06-2X." Zainab H. A. Alsunaidi. Oral presentation

Membership of Scientific and Professional Societies and Organizations

- American Chemical Society 2014-present
- American Physical Society 2014-present
- Golden Key International Honor Society 2015-present
- Honor Society 2015-present
- Saudi Chemical Society 2017-present



Teaching Activities

Undergraduate

#	Course/Rotation Title	No./Code	Extent of Contribution (no. of lectures/Tutorials. Or labs, Clinics)
1	Organic chemistry	CHEM 162	Lab
2	General chemistry	CHEM 101	Lab
3	Thermodynamic chemistry	-	Lab
4	Analytical chemistry	CHEM 241	Lab
5	Biochemistry	CHEM 261	Lab
6	Electrochemical chemistry	-	Lab
7	General Chemistry	CHEM 203	Lecture + lab
8	Research project	CHEM 474	Students supervision

Course Coordination

#	Course Title and Code	Coordination	Co-coordination	Undergrad.	Postgrad.	From	to
1	General Chemistry (CHEM 203)	√		√		18/9/2017	30/10/2017

Student Academic Supervision and Mentoring

#	Level	Number of Students	From	to
1	Graduate student (research mentoring)	2	Aug 2016	May 2017
2	Graduate student (software training)	3	March 2016	May 2016

Scientific research centers that have been utilized:

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1	The center for advanced scientific computing and modeling (CASCaM) at UNT (May 2014-May2017)
2	Institute for Cyber-Enabled Research (iCER) at MSU (June 2016-June2017)

Scientific contribution to scientific Journals:

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1	Working as a scientific reviewer for the Computational and Theoretical chemistry (CTC), 2017

Scientific presentation:

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1	Why Public Health Organizations Should Accept the Use of Irradiated Food. Zainab H. A. Alsunaidi, IELI, graduation seminar, Denton, TX, July 19 th , 2011.
2	Should college students use energy drinks to increase their cognitive performance? Zainab H. A. Alsunaidi, graduation preparation course (GPC), Denton, TX, Nov 18 th , 2011.



3	Introduction to Solar Energy. Zainab H. A. Alsunaidi, graduation preparation course (GPC), Denton, TX, Sep 9 th , 2011.
4	Fast simultaneous analysis of caffeine, trigonelline, nicotinic acid and sucrose in coffee by liquid chromatography-mass spectrometry. Zainab H. A. Alsunaidi, graduation preparation course (GPC), Denton, TX, Sep 30 th , 2011.
5	Should Chlorine Be Used To Disinfect Drinking Water. Zainab H. A. Alsunaidi, graduation preparation course (GPC), Denton, TX, Dec 5 th , 2011.
6	Surface-Enhanced Raman Spectroscopy. Zainab H. A. Alsunaidi, UNT, Denton, TX, May 2 nd , 2012.
7	Sulfur : Overview and Challenges. Zainab H. A. Alsunaidi, summer presentation, UNT, Denton, TX, July 3 rd , 2012.
8	Plastic Pollution of the Marine Environment: A Global Challenge. Zainab H. A. Alsunaidi, UNT, TX, Dec 5 th , 2012.
9	Exploration of an Environmentally Friendly Reusable Lewis Acid Catalyst: Terbium(III) Triflate Zainab H. A. Alsunaidi, UNT, Denton, TX, April 18 th , 2013.
10	Characterization of Inorganic Compounds Using Two-Dimensional Nuclear Magnetic Resonance (2D NMR). Zainab H. A. Alsunaidi, UNT, Denton, TX, April 25 th , 2013.
11	Van der Waals Density Functionals (vdW-DFs) Applied to Water Adsorption on Metals, literature talk series, UNT, Denton, TX, May 22 nd , 2013.
12	Computational considerations of Noncovalent Interactions. Zainab H. A. Alsunaidi, literatures talk series, UNT, Denton, TX, July 16 th , 2013.
13	Introduction to VASP. Zainab H. A. Alsunaidi, summer workshop, UNT, Denton, TX, Aug 22 nd , 2013.
14	Plane wave basis sets. Zainab H. A. Alsunaidi, summer workshop, UNT, Denton, TX,, Aug 7 th , 2014
15	Solid-state calculations. Zainab H. A. Alsunaidi, summer workshop, UNT, Denton, TX, July 9 th , 2015.
16	Surface Modeling. Zainab H. A. Alsunaidi, summer workshop, MSU, East Lansing, MI, Aug 2 nd , 2016.
17	I attended <u>numerous</u> research seminars given by distinguished professors around the world including one of the Nobel prize winner: Dr. Robert H. Grubbs, "Design and Applications of Selective Olefin Metathesis Catalysts." UNT, Denton, TX, April.16 th , 2016.

Workshops and training:

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1	General English program, Kings School Oxford, UK, Mar 2010-Oct2010
2	Academic English Program, Intensive English Language Institute (IELI) at the University of North Texas, Denton, TX, USA, Oct2010-Jul2011
3	Graduate Preparation Course, Intensive English Language Institute (IELI) at the University of North Texas, Denton, TX, USA, Aug2011-Dec2011
4	International teaching assistant training program, UNT, Denton, TX, Fall 2012.
5	Cluster building workshop, UNT, Denton, TX, Jul 24-26 th , 2012.
6	Modeling chemistry with the ADF suite, UNT, Denton, TX, Mar 21 st , 2014.
7	Utilization of computational resources, UNT, Denton, TX, Dec 5 th , 2014.
8	Using Refworks for literature review and bibliography, UNT, Denton, TX, Feb 5 th , 2015.
9	Peer mentoring, Graduate Student Teaching Excellence Program, UNT, Denton, TX, Sep 16 th , 2015.
10	Creating a respectful classroom environment, Graduate Student Teaching Excellence Program, UNT, Denton, TX, Sep 15 th , 2015.
11	Working in Industry, given by Dr. William Carroll, Director of the Board for the American Chemical Society, VP for Industry Issues at Occidental Chemical Corporation, and an ACS Career Pathways trainer, UNT, Denton, TX, Feb 13 th , 2015.
12	Interviews, given by Dr. William Carroll, UNT, Denton, TX, April 17 th , 2015.

13	Inaugural HPC workshop, UNT, Denton, TX, March 24 th , 2016.
14	UNT HPC Python for Research Workshop, UNT, Denton, TX, April 28 th , 2016.
15	Taming the Wild Word Beast, UNT, Denton, TX, Feb 16 th , 2016.
16	Developing Assessments that Engage Students in Three-dimensional Learning, the STEM Teaching Essentials workshop, MSU, East Lansing, MI, Sep 20 th , 2016.
17	Graduate Student Leadership Summit, MSU, East Lansing, MI, Nov 4 th , 2016.
18	Promoting your scholarship: How to collaborate without getting lost in the crowd, MSU, East Lansing, MI, Nov 4 th , 2016.
19	Data Analysis, Visualization and automation with MATLAB, MSU, East Lansing, MI, Oct 6 th , 2016.
20	Introduction to Linux/Unix, MSU, East Lansing, MI, Oct 13 th , 2016.
21	Introduction to HPCC, MSU, East Lansing, MI, Oct 18 th , 2016.
22	Responsible Conduct of Research training, 6 sessions: data and data management, authorship, plagiarism, conflict of interest, peer review and collaboration, research misconduct, and rigor and reproducibility, MSU, East Lansing, MI, Fall 2016- Spring 2017.
23	Mendeley workshop, MSU, East Lansing, MI, Jan 18 th , 2017.
24	Dissertation Support Group, six sessions, MSU, East Lansing, MI, Spring 2017.
25	Research Mentor Training, MSU, East Lansing, MI, March 31 st , 2017.
26	University Graduate Certification in College Teaching Institute, MSU, East Lansing, MI, May 11 th –12 th , 2017.
27	Introduction to GAMESS-US, MSU, East Lansing, MI, May 23 rd , 2017.
28	Introduction to LaTeX, MSU, East Lansing, MI, May 31 st , 2017.
29	Journal Reviewer and Author Workshop, Presented by an Elsevier Lead Journal Manager, MSU, East Lansing, MI, June 2 nd , 2017.
30	Thesis/Dissertation Formatting and Graduation Requirements, MSU, East Lansing, MI, Oct 14 th , 2016 and Feb 24 th , 2017.
31	Scifinder CAS solution, given by a CAS representative, MSU, East Lansing, MI, (March 28 th , 2017)
32	Write-In at the Graduate School, MSU, East Lansing, MI, Jan 20 th , 2017.
33	Faculty Mentorship Certification Program, Mentoring in teaching/learning and research, Deanship of Academic Development, IAU, Dammam, Saudi Arabia, Dec-May 2018
34	تحليل الاختبارات والاستفادة من قراءة نتائج الاختبار, College of science, IAU, Dammam, Saudi Arabia, Apr 2018
35	الاستخدام الأمثل لمصادر معلومات مكتبات الجامعة, Library affairs, IAU, Dammam, Saudi Arabia, Nov 2017,
36	كيف تخدم كليات العلوم سوق العمل, graduate studies unit, College of science, IAU, Dammam, Saudi Arabia, Mar 2018
37	Research gate, Web of science and Scopus, Library affairs, IAU, Dammam, Saudi Arabia, Feb 2018
38	أفضل الممارسات في كتابة الأبحاث للنشر العلمي, Library affairs, IAU, Dammam, Saudi Arabia, Apr 2018
39	Blackboard Collaborate, electronic learning unit, IAU, Dammam, Saudi Arabia, Oct 2017
40	Endnote الاستشهاد المرجعي لمصادر المعلومات باستخدام برنامج, Library affairs, IAU, Dammam, Saudi Arabia, Sep 2018
41	أساليب فعالة لتقويم الطلاب, College of science, IAU, Dammam, Saudi Arabia, Sep 2018
42	أساسيات البلاك بورد (1), electronic learning unit, IAU, Dammam, Saudi Arabia, Sep 2018
43	دورة تدريب مدرّبين معتمدين من المؤسسة العامة للتدريب التقني و المهني, Oct 2018

Administrative Responsibilities, Committee and Community Service (Beginning with the most recent)

Committee Membership

#	From	To	Position	Organization
1	2008	2010	Member	Committee on Academic advising in Chemistry department



#	From	To	Position	Organization
2	2008	2009	Member	Monitoring exams committee in Mathematics department
3	Aug 2017	Dec 2017	Head	The organizing committee of conducting midterm exams in the chemistry department
4	Aug 2017	Jan 2018	Activities coordinator	Saudi Chemical Society branch in the Eastern Province
5	Aug 2017	present	member	Graduate studies committee in Chemistry department
6	Aug 2017	present	member	The development of PhD programs committee in Chemistry department
7	Dec 2017	Jan 2018	member	The organizing committee of conducting final exams in the chemistry department
8	Jan 2018	present	Head	Tables committee

Volunteer Work

#	From	To	Type of Volunteer	Organization
1	2009	2009	Organizing graduation party for chemistry students	Chemistry department, King Faisal University, Dammam
2	Aug 2013	May 2016	Helping and guiding many Saudi students with academic issues (admission, conducting research, academic writing, choosing major/courses, choosing advisor, and tutoring), in social life, and in personal development	Saudi Club in Denton, Texas
3	Aug 2016	May 2017	Chemistry tutoring	Muslim students association, MSU, East Lansing, MI

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

1	Extensive experience with software code Gaussian, VASP, Vista, Mercury, and OVITO, and proficient with MOLPRO, NWCHEM, MATLAB, MOLPAC, quantum espresso, and ADF
2	Extensive experience using UNIX/Linux based systems
3	Proficient with python scripting language and limited experience with Fortran
4	Extensive experience with mendeley and Refworks
5	Experience in using Chemdraw, chemcraft, and Gaussian view
6	Professional in academic use of Microsoft office and proficient use of Adobe Photoshop
7	Extensive experience using all library and online academic resources

Personal Key Competencies and Skills:

1	Professional in academic writing, scientific reviewing, writing proposal, white papers, and critiques
2	Professional in scientific presentation and poster
3	Professional communication skills and networking



4	Leading and coordinating many group teams and meetings
5	Professional in research publishing process
6	Working on developing Leadership skill and self-improvement
7	Very committed, responsible and dedicated to work

Last Update

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