

## Curriculum Vitae

### **Faady “Mohammad Yusri” Siouri**

**Address** : Ramallah, Baten Al-Hawa St, Building # 33, Apartment # 1

**Email** : faady.siouri@aaup.edu & fsiouri@hotmail.com

**Date of Birth** : July 10, 1986

**Mobile Phone** : (+972) 594-404536

**Gender** : Male

**Marital Status** : Single

**Nationality** : American

### **Education:**

University of California Santa Barbara, Santa Barbara CA

Doctor of Philosophy in Physical and Analytical Chemistry, June 2017

**GPA 4.00 / 4.00**

Thesis Title: “Excited State Dynamics of Isolated Nucleobases and Base Pairs”

University of California Santa Barbara, Santa Barbara CA

Masters of Arts in Physical and Analytical Chemistry, June 2014

**GPA 4.00 / 4.00**

Thesis Title: “Resonance-Enhanced Multiphoton Ionization to Study the Electronic Structure and Excited State Dynamics of Isolated Thymine and Uracil in the Gas Phase.”

University of California Irvine, Irvine CA

Bachelor of Science in Chemistry, June 2011

**GPA 3.95 / 4.00**

Cypress College, Cypress CA

Associate Degree in Science, June 2009

**GPA 3.89 / 4.00**

Catholic High School, Ramallah West Bank

High School Diploma, July 2004

**GPA 87.4% / 100%**

### **Honors and Awards:**

- Best Instructor Award by AAUP Student Association, Arab American University, Palestine, 2017.
- Outstanding Service to the Department of Chemistry and Biochemistry Award, University of California, Santa Barbara, 2015.
- Physical Chemistry Chemical Physics Poster Prize at the 62<sup>nd</sup> Pacific Conference on Spectroscopy and Dynamics, Royal Society of Chemistry, 2015.
- Phi Lambda Upsilon Award for Outstanding Academic Achievement, University of California, Santa Barbara, 2013.
- Outstanding Teaching Assistant Award in Chemistry, University of California, Santa Barbara, 2013.
- Phi Lambda Upsilon Award for Outstanding Academic Achievement, University of California, Irvine, 2011.
- Magna Cum Laude, University of California, Irvine, 2011
- Golden Key International Honor Society, University of California, Irvine, 2010.
- National Society of Leadership and Success (Sigma Alpha Pi), University of California, Irvine, 2009.
- “Michael Jacob” honor as best science student, Cypress College, 2008.
- Deans Honor Roll and President Honor Roll each quarter/semester at Cypress College and University of California, Irvine, 2005-2011.

### **Fellowships/Scholarships:**

- AAUP Internal Fellowship, The Arab American University, Jenin, Palestine, 2019.
- Central Continuing Student Fellowship, University of California, Santa Barbara, 2016-2017
- Philip & Aida Siff Educational Foundation Graduate Fellowship, University of California, Santa Barbara, 2015-2016
- Elliott Family Foundation Scholarship, University of California, Irvine, 2009-2010
- Beall Family Foundation Scholarship, University of California, Irvine, 2009
- “Michael Jacobs” Scholarship for Science/Engineering/Mathematics, Cypress College, 2008

### **Languages:**

- Fluent English (Reading: Excellent; Writing: Excellent; Conversation: Excellent).
- Fluent Arabic (Reading: Excellent; Writing: Excellent; Conversation: Excellent).

### **Qualifications & Computer Skills:**

- Microsoft Office Word
- Microsoft Office Excel
- Microsoft Office PowerPoint
- Internet Explorer
- Gaussian Program
- Mathematica Program
- Origin Program

### **Other Skills:**

- Build and fix laboratory instruments
- Expert in gas phase laser spectroscopy
- Great mentoring experience
- Experience organizing large scientific events and lab tours
- Work with LASERS and optics
- Work and manage general, physical, and analytical chemistry laboratories
- Analyze spectral data
- Test chemical samples using techniques such as NMR, FT-IR, GCMS, HPLC, MALDI, ESI-MS, DRIFTS, ATR, UV-VIS, and REMPI.
- Manage a chemistry stock room
- Teach graduate and undergraduate chemistry courses
- Teach and simplify mathematics up to linear algebra/differential equations
- Teach chemistry and mathematics using analogies and real-life examples.
- Teach chemistry courses while being enrolled in them
- Summarize books into simplified and organized notes
- Write my own chemistry and physics curriculum
- Manage a tutoring center
- Tutor student in discussions and one on one.
- Establish new chemistry programs

### **Training Courses:**

- Computer programming C++ .
- Advanced chemical instrumentation and instrumental analysis.
- Physical science (How to teach mathematics and science at an elementary school).

## **Experience:**

### **Research Experience**

#### **The Arab American University, Chemistry Department.**

*Faculty Researcher, August 2019 – Present*

- Extraction of herbal components for medicine uses.
- Extraction of polycyclic aromatic hydrocarbons from environmental samples.
- Extraction and pre-concentration of monomethyl mercury and inorganic mercury.
- Extraction of pharmaceuticals from environmental and biological samples.
- Develop new sample-preparation techniques.
- Develop environmentally friendly extraction and pre-concentration techniques.

#### **The Arab American University, Chemistry Department.**

*Faculty Researcher, September 2017 – August 2019*

- Prepared thin films of CuO metal chalcogenides by simple and convenient electrodeposition technique on FTO/glass substrates for PEC purpose (to convert sunlight to electricity).
- Studied the electrical and optical properties of the prepared CuO thin film electrodes.
- Modified the prepared CuO thin film electrodes by coating them with different conducting polymers.
- Enhanced efficiency and stability of the prepared CuO thin films by pre-annealing the prepared thin film electrodes at different temperatures and time and controlling the pre-annealed film cooling rate.
- Studied the effect of film thickness on surface morphology and PEC characteristics of the prepared CuO film electrodes.
- Studied the effect of different electrolytic solutions on PEC characteristics.

#### **Mattanjah de Vries, University of California, Santa Barbara, Chemistry Department.**

*Graduate Researcher, September 2012 – April 2017*

- Constructed a new beam instrument (laser desorption, jet cooling, mass spectrometry instrument) to explore the electronic structure excited state dynamics of base pairs in the gas phase.
- Used resonance-enhanced multiphoton ionization (REMPI) to study the electronic structure and excited state dynamics of isolated nucleobases, nucleobase analogues, and base pairs.
- Used the application of high-resolution laser spectroscopy and mass spectrometry to answer some questions on the ancient past of the Mayans.

Anouk M. Rijs, FELIX Laboratory, Radboud University, Nijmegen.

*Visiting Researcher, February 22<sup>nd</sup> – March 4<sup>th</sup>, & November 15<sup>th</sup>- December 2<sup>nd</sup>, 2016*

- Used FELIX (Free Electron Laser for Infrared Experiments) to collect IR spectra for base pairs in the far-IR region.
- Structurally characterized these base pairs with the help of BOMD simulations.
- Studied intermolecular hydrogen-bond vibrations of these base pairs in their ground and excited states.

Nien-hui Ge, University of California, Irvine, Chemistry Department.

*Undergraduate Research Assistant, January 2010 - June 2011*

- Determine vibrational properties of the amide-I, -II and -A modes in alkyl amide compounds used as models of peptide unit.
- Synthesized amides with different number of methyl groups on the terminal carbon atoms.

## **Teaching Experience**

The Arab American University, Chemistry Department.

*Assistant Professor, September 2017 – Present*

- Courses/Labs Taught:
- Pre-chemistry (Chem 100)
- Chemistry for medical sciences (Chem 162)
- Chemistry for medical students (Chem 161)
- Chemistry laboratory for medical students (Chem 165)
- General chemistry I (Chem 101)
- General chemistry laboratory I (Chem 105)
- General chemistry II (Chem 102)
- Chemistry I for dental students (Chem 110)
- Chemistry II for dental students (Chem 120)
- Chemistry laboratory for dental students (Chem 130)
- Medical chemistry (Chem 114)
- Analytical chemistry for medical students (Chem 261)
- Analytical chemistry (Chem 262)
- Quantum chemistry (Chem 443)
- Undergraduate seminar (Chem 449)

University of California, Santa Barbara, Chemistry Department.

*Teacher Assistant and Lab Instructor, September 2012 – June 2016*

- Courses/Labs Taught:
  - General chemistry laboratory for freshmen and sophomores. (Chem 1AL)
  - Honors general chemistry laboratory (Chem 2BC)
  - Environmental chemistry (Chem 123)
  - Photochemistry (Chem 118/218)
  - Analytical chemistry (Chem 150)

Personal Business

*Private Tutor, August 2006 – June 2013*

- Tutored high school chemistry, math, and physics
- Tutored college mathematics
- Tutored undergraduate chemistry courses

Dar Al-Ma'refa Middle/High School – Jerusalem

*Science, Chemistry, and Physics Teacher, August 2011 – July 2012*

- Courses Taught
  - Science: For sixth, seventh, eighth, and ninth graders.
  - Chemistry: For tenth, eleventh, and twelfth graders.
  - Physics: For tenth, eleventh, and twelfth graders.
- Wrote my own science, chemistry, and physics curriculum

Lowell Elementary School - Santa Ana.

*CAL Teach, March 2011 – June 2011*

- Taught mathematics and science to fifth graders.

University of California, Irvine, Chemistry Department.

*Discussion Leader, September 2009 – June 2011.*

- Held discussion sessions for thermodynamics, quantum mechanics, statistical mechanics, analytical chemistry, and instrumentation chemistry

Cypress College, Science Department.

*Supplemental Instructor, August 2006 – May 2009*

- Held Sessions for:
  - Chemistry: General chemistry I, general chemistry II, organic chemistry I, and organic chemistry II.

- Mathematics: Algebra, statistics, calculus I, and calculus II
- Physics: Mechanics and electricity and magnetism.

## **Work Experience**

### The Arab American University, Chemistry Department.

*Head of Chemistry Department, August 2019 – July 2023*

- Established a new Bachelor's program, "Applied Chemistry"
- Established a Master's program in Applied Chemistry.
- Drew up a teaching schedule and distributed it among instructors.
- Oversaw the teaching that goes on within the chemistry department.
- Oversaw the strategic development of the chemistry department, including curriculum planning, safety, and day to day administration.
- Provided support for staff, if required.
- Monitored student progress and performance.
- Advised students on matters related to progress and achievement.
- Participated in the appointment of new members of staff.
- Organized department meetings in order to discuss various topics and issues regarding the department.
- Attended heads of department meetings and disseminate information to the department as necessary.
- Ensured that adequate work has been set in the case of teaching staff absence.
- Oversaw the work of the chemistry department lab technicians.
- Improved undergraduate research by switching from theoretical-based to experimental-based projects.
- Established an "outreach" program, where students visit schools and perform fun chemistry experiments and talk about the applied chemistry program at AAUP.
- Scheduled visits to nearby research institutes, pharmaceutical companies, food companies, cosmetics companies, and crime labs.

### University of California, Santa Barbara, Chemistry Department.

*Lead Teaching Assistant at the Chemistry Department, September 2013 – June 2015*

- Observed teaching assistants teaching general chemistry laboratories and provided them with comments and feedback to improve their teaching skills.
- Enhanced the quality of instruction in general chemistry labs by assisting the chemistry department's graduate teaching assistants.

Cypress College, Science Department.

*Lab Technician Assistant, September 2007 – May 2009*

- Prepared chemical solutions for labs to use
- Trained volunteers on how to become proficient in solution chemistry.

### **Research Projects:**

#### **Faculty Research**

In my previous work, I prepared cupric oxide (CuO) thin film electrodes using a simple and inexpensive electrodeposition method on the fluorine- doped tin oxide (FTO)/glass substrates. Several parameters were controlled to enhance the conversion efficiency and stability of the prepared films under photoelectrochemical (PEC) conditions. These parameters include controlling the films deposition time, pre-annealing the prepared CuO film electrodes at different temperatures and times, controlling the cooling rate, and studying the effect of different electrolytic solutions. Moreover, the pre-annealed CuO films were modified by coating them with different conducting polymers to form CuO/conducting polymer composite. Effects of modifications on different film properties such as X-ray diffraction (XRD) patterns, surface morphology, photoluminescence (PL) spectra, and electronic absorption spectra were then investigated. In addition, PEC properties and efficiency of the prepared composite were studied by plotting J-V curves and by measuring stability of the prepared composite under illumination for prolonged times.

My current research shows how to optimize the uptake of nanomaterials for use in:

- Extraction of herbal components for medicinal uses.
- Extraction of polycyclic aromatic hydrocarbons from environmental samples.
- Extraction and preconcentration of monomethylmercury and inorganic mercury.
- Extraction of pharmaceuticals from environmental and biological samples.

Nanotechnology and nanoscience have seen the fastest pace in all aspects of synthesis methodologies and wide applications in all areas of medicine, agricultural, environmental, biological and electronics. Nanotechnology holds the potential for pervasive and promising applications and getting significant attention and financial aids also. At nanoscale, substances have a larger surface area to volume ratio than conventional materials which is the prime reason behind their increased level of reactivity, improved and size tunable magnetic, optical and electrical properties.



The application of the twelve principles of green chemistry in nanomaterials synthesis is a relatively new emerging issue concerning sustainability. This field has received great attention in recent years due to its capability to design alternative, safer, energy efficient, and less toxic routes towards synthesis.

### Graduate Research

The purpose of my research was to use resonance-enhanced multiphoton ionization to study the electronic structure and excited state dynamics of isolated nucleobases and base pairs in the gas phase. This was done using an instrument that combines laser desorption, jet cooling, and mass spectrometry. First, we measured well-resolved vibronic spectra of all the molecules we studied by resonant two-photon ionization (R2PI). Then, we performed double-resonance spectroscopy to further elucidate the structure and excited state dynamics of the target molecules. Because nucleobases typically exist in several tautomeric forms which are isolated under gas phase jet-cooled conditions, we used UV-UV double resonance spectroscopy to determine the number of tautomers present and their origins. IR-UV double resonance spectroscopy was used to obtain tautomer-specific IR spectra. We measured excited state lifetimes of tautomer-selected nucleobases by nanosecond and picosecond pump-probe spectroscopy.

With the use of a free-electron laser, we were able to collect IR spectra for multiple base pairs in the far-IR region ( $<880\text{ cm}^{-1}$ ). Although the far IR region has been difficult to access both experimentally and computationally, we were able to structurally characterize the molecules with the help of Born–Oppenheimer Molecular Dynamics (BOMD). This far-IR region yields new information because it is characterized by large-scale delocalized vibrations that cannot be observed in the mid-IR region.

Finally, we used R2PI in combination with supersonic jet cooling and mass spectrometry to examine archaeological samples. We studied organic residues within pottery sherds from Maya vessels (600–900 CE) and Mississippian vessels (1100–1200 CE), successfully detecting three molecular markers, caffeine, theobromine, and theophylline, associated with the use of cacao.

### Undergraduate Research

I joined a project which aims to simulate amide-I/II two-dimensional infrared (2D-IR) spectra of short peptides composed of  $C_{\alpha,\alpha}$ -dialkylated amino acid residues, and reveal their backbone structure by comparing measured and simulated 2D-IR spectra. One of the important steps to accurately calculate a 2D-IR spectrum is the initial setting of the vibrational properties, such as resonant frequency and transition dipole moment, of the amide

modes on each peptide unit along the backbone chain.

My role in this project was to experimentally determine such vibrational properties of the amide-I, -II and -A modes in alkyl amide compounds used as models of peptide unit. To this end, I synthesized nine amides with a different number of methyl groups on the terminal carbon atoms and characterized them by <sup>1</sup>H-NMR and mass spectroscopy. Each amide was dissolved in tetrachloroethane to measure a transmission FT-IR spectrum of its monomer form. I analyzed the three amide vibrational bands in the acquired spectra by curve fitting, and investigated how the peak frequencies and the transition dipole moment depend on the number of methyl groups. The acquired information is useful to develop a more sophisticated simulation protocol which takes into account subtle differences of the local environment around a peptide unit.

### **Publications:**

1. **Faady Siouri**, Feras Abujaber, Mohammad Jaradat, Assem Mubarak. *Eco-friendly magnetic solid phase extraction based on magnetic cellulose nanoparticles for the extraction of parabens from cream products*. Available online at An-Najah University Journal for Research – A (Natural Sciences)., (2025)
2. Hamada Imtara, Feras Abujaber, **Faady Siouri**, Aziz Tumeh, and Bashar Saad. *Chemical composition, antioxidant and anticancer activities of Thymus capitatus essential oil: Experimental and computational approaches*. Phyton-International Journal of Experimental Botany., **94** (3), 723-737 (2025)
3. **Faady Siouri**, Feras AbuJaber, Asem Mubarak, and Fuad Al-Rimawi. *Dispersive Liquid-Liquid Microextraction on Solidification of Floating Organic Drop-Determination of Non-Steroidal Anti-Inflammatory Drugs in Water*. Separation Science Plus., **10** (2), 1-8 (2021)
4. J.A. Berenbeim, S. Boldissar, S. Owens, M.R. Haggmark, G. Gate, **F.M. Siouri**, T. Cohen, M. F. Rode, C. Schmidt Patterson, and M.S. de Vries. *Excited State Intramolecular Proton Transfer in Hydroxyanthraquinones: Predicting Fading of Organic Red Colorants in Art*. Science Advances., **5** (9), (2019)
5. Jacob Berenbeim, Samuel Boldissar, **Faady Siouri**, Gregory Gate, Michael R. Haggmark, Briana Aboulache, Trevor Cohen, Mattanjah de Vries. *Excited State Dynamics of Isocytosine; a Hybrid Case of Canonical Nucleobase Photodynamics*. The Journal of Physical Chemistry Letter., **8**, 5184-5189 (2017)

6. **Faady M. Siouri**, Samuel Boldissar, Jacob Berenbeim, Mattanjah de Vries. *Excited State Dynamics of 6-Thioguanine*. The Journal of Physical Chemistry A., **121** (28), 5257-5266 (2017)
7. Shawn C Owens, Jacob Berenbeim, Marshall Ligare, Lisa E Gulian, **Faady M Siouri**, Samuel Boldissar, Stuart Tyson-Smith, Gregory Daniel Wislon, Anabel Ford, Mattanjah S De Vries. *Direct Analysis of Xanthine Stimulants in Archeological Vessels by Laser Desorption Resonance Enhanced Multiphoton Ionization*. American Chemical Society., **89** (5), 2838-2843 (2017)
8. Marshall Ligare, **Faady Siouri**, Ota Bludsky, Dana Nachtigallova, Mattanjah S. de Vries. *Characterizing the dark state in thymine and uracil by double resonance spectroscopy and quantum computation*. Phys. Chem. Chem. Phys., **17** (37), 24336-24341 (2015)
9. **Faady Siouri**, Anouk Rijs, Jerome Mahe, Samuel Boldissar, Kas Houthuijs, Mattanjah S. de Vries. *Structural Characterization of DNA Base Pairs using Far-IR spectra and Born–Oppenheimer Molecular Dynamics (BOMD) Simulations*. In Preparation.
10. **Faady Siouri**, Anouk Rijs, Jerome Mahe, Samuel Boldissar, Kas Houthuijs, Mattanjah d. de Vries. *Intermolecular Hydrogen-Bond Signatures in the Far-IR Region of Guanine-Guanine and Guanine-Cytosine Base-Pairs. Ground State vs Excited State*. In Preparation.

### **Presentations:**

1. Poster Presentation: *Intermolecular Hydrogen Bond Signatures in the Far-IR Region of Guanine-Cytosine Base-Pair Structures*, 2017  
Gordon Research Seminar on Gaseous Ions: Structures, Energetics & Reactions (GRS) at Ventura Beach Marriot, CA.
2. Oral Presentation: *Introduction to Undergraduate Research*. 2013-2017 University of California Santa Barbara Chemistry Department, CA.  
Every quarter, I organized a volunteer seminar where I introduced undergraduates to the different research fields at the University of California, Santa Barbara. The seminar was designed to help students get involved in research as early as possible, explain to them

their responsibilities as undergraduate researchers, introduce them to graduate school, and more. After the seminar, I took the students to the de Vries research lab and showed them how a research lab looks like, explained my research and its application, and showed them some laser demonstrations to prove to them that research is also fun.

3. Poster Presentation: *Resonance-Enhanced Multiphoton Spectroscopy of Thymine and Uracil; A High-Resolution Probe for Gas Phase Structure and Dynamics*. 2015 62<sup>nd</sup> Pacific Conference on Spectroscopy and Dynamics at Pacific Grove, CA.
4. Poster Presentation: *Shining Light on Our Origin*. 2014, 2015 University of California Santa Barbara, CA  
Chemistry Department Recruitment Event.
5. Oral Presentation: *How to Study?* October 2017-Present. The Arab American University, Jenin. Every semester, I organized multiple volunteer lectures where I give advice to undergraduates on the best study methods, things they should do, things they should avoid, and how to overcome the fear of becoming a university student. Hundreds of undergraduates, particularly freshmen and sophomores, attend and these lectures quickly turn into discussion sessions. These lectures were proven to be very successful that even other universities such as Birzeit University asked me to give few lectures at their university.

**References:**

1. Dr. Mattanjah S. de Vries: Chemistry Professor and my Principle Investigator.

Phone: (805) 893-5921

Fax: (805) 893-4120

Email: devries@chem.ucsb.edu

University of California, Santa Barbara

Physical Science Building North

Mail Code: 9510

Isla Vista, CA, 93106

2. Dr. Martin Moskovits: Chemistry Professor and the Chair of my Committee.

Phone: (805) 893-5035

Fax: (805) 893-4120

Email: moskovits@chem.ucsb.edu

University of California, Santa Barbara

Physical Science Building North

Mail Code: 9510

Isla Vista, CA, 93106

3. Dr. Petra Van Koppen: Chemistry Professor and my Teaching Advisor

Phone: (805) 893-5675

Fax: (805) 893-4120

Email: petra@chem.ucsb.edu

University of California, Santa Barbara

Physical Science Building North

Mail Code: 9510

Isla Vista, CA, 93106

4. Dr. Ali Abu Zuhri: Professor of Chemistry and the University President

Phone: (+970) 599-208633

Office: (+970) 04-2418888 Ext: 1016

Email: Ali.Zidan@aaup.edu

The Arab American University, Jenin, Palestine.

Presidency Building

Office: 5107

5. Dr. Muayad Abu Saa: Assistant Professor of Physics, Former Dean of Sciences, and the former Vice President of Academic Affairs.

Phone: (+970) 599-208633

Office: (+970) 04-2418888 Ext: 1155

Email: muayad.abusaa@aaup.edu

The Arab American University, Jenin, Palestine.

Science Building

Office: 1219

6. Dr. Siba Shanak: Assistant Professor of Biology and the Dean of Sciences.

Phone: (+970) 598-650909

Office: (+970) 04-2418888 Ext: 1143

Email: siba.shanak@aaup.edu

The Arab American University, Jenin, Palestine.

Science Building

Office: 1106A

7. Dr. Nien-Hui Ge: Chemistry Professor and my Undergraduate Research Advisor.

Phone: (949) 824-1263

Fax: (949) 824-8571

Email: nhge@uci.edu

University of California, Irvine

2143 Natural Science 2

Mail Code: 2025

Irvine, CA, 92697

8. Dr. Reginald M. Penner: Chemistry Professor and my Analytical Chemistry Instructor.

Phone: (949) 824-8572

Fax: (949) 824-8125

Email: rmpenner@uci.edu

University of California, Irvine

2137 Natural Science 2

Mail Code: 2025

Irvine, CA, 92697