Dr. F. Ahu Akın
Orcid ID: https://orcid.org/0000-0001-9391-7026
Web of Science ResearcherID : B-9194-2008
https://scholar.google.com.tr/citations?user=JtuFDEcAAAAJ&hl=tr

Education:

Ph. D. (Chemistry), 2003, University of Illinois at Chicago, Chicago, Illinois, U.S.A.
M.S. (Chemistry), 1997, Boğaziçi University, Istanbul, Turkey.
B.S. (Chemistry) (Honors), 1996, Boğaziçi University, Istanbul, Turkey.

Research Experience:

2009-2023 Boğaziçi University, Department of Chemistry
Position: Assistant Professor (Physical-Analytical Chemistry)
2008-2009 Boğaziçi University, Department of Chemistry
Position: Instructor
2006-2007 Stanford University – SRI International Menlo Park, California
Position: *Post-doctoral Scholar (Stanford U., Dept. of Mechanical Engineering) and Visiting Fellow (SRI International Molecular Physics Laboratory)*
2005-2006 University of Arizona, Dept. of Chemistry, Tucson, Arizona
Position: *Post-doctoral Scholar /Lab Manager (Chemistry)*

2003-2005 University of Nevada at Reno, Chemistry and Chemical Physics Program, Reno, Nevada
Position: *Post-doctoral Scholar*

1997-2003 University of Illinois at Chicago, Chemistry Department, Chicago, Illinois
Graduate Studies

Keywords: Laser Chemistry, Remote Detection, Mass Spectrometry, Analytical Instrument Design, Laser Photoelectron Spectroscopy and Imaging, Laser Ablation and Ion-beam Surface Modification of Thin Films, X-Ray Photoelectron Spectroscopy, Ultrafast Photoelectron Spectroscopy, Charge-transfer complexes, Metal Oxides, Gas Phase Molecular Clusters, Gas Phase Molecule-Surface Interactions, Protein-Molecule Interactions, Computational Chemistry

Publications:

1- M. S. Yordanlı, R. Escobar, J. Meza, D. Akgül, Y. Zhao, A. Uzun, F. A. Akin, V. Aviyente, A. C. Atesin, T. A. Ateşin, "DFT Study of the Mechanism of Selective Hydrogenation of Acetylene by Rhodium Single-Atom Catalyst Supported on HY Zeolite", ChemPhysChem (2025), e202400867; DOI:10.1002/cphc.202400867. (WOS *Citations: 0*)

2- F. O. Ogur, S. Mamasoglu, S. Perry, F. A. Akin, A. B. Kayitmazer, "Interactions between Hyaluronic Acid and Chitosan by Isothermal Titration Calorimetry: Effect of ionic strength, pH, and polymer molecular weight", J. Phys. Chem. B, 2024, 128, 37, 9022-9035; DOI:10.1021/acs.jpcb.4c03930. (WOS *Citations: 1*)

3- F. A. Akin, "Noncovalent Interactions and Electron Transfer between 1,3,5-Trinitro-1,3,5-triazinane and $Al_3O_3^-$", *J. Mol. Struc.* (2024), 138099; DOI:10.1016/j.molstruc.2024.138099. (WOS *Citations: 1*)

4- M. Kiran, Z. P. Haslak, H. Ates, V. Aviyente, and F. A. Akin, "Evaluation of the pKa's of Quinazoline derivatives: Usage of quantum mechanical based descriptors," *J. Mol. Struc.* 1303 (2024), 137552; DOI:10.1016/j.molstruc.2024.137552. (WOS *Citations: 2*)

5- F. A. Akin, Güven Kıyak, "Laser ionization of solid RDX: a density functional theory study," *Struct. Chem.* **30**, 201 (2019), DOI: 10.1007/s11224-018-1191-4. (WOS *Citations: 4*)

6- F. A. Akin, "Ionisation energy, electron affinity, and mass spectral decomposition mechanisms of RDX isomers upon electron attachment and electron ionisation," *Mol. Phys.* **114**, 3556 (2016). DOI:10.1080/00268976.2016.1246759. (WOS *Citations: 4*)

7- F.A. Akin, "Mass spectral decomposition mechanisms of RDX isomers upon electron attachment and electron ionisation: a DFT study of normal mode activation incorporating Duschinsky rotations," *Mol. Phys.* **114**, 3277 (2016). DOI:10.1080/00268976.2016.1229059. (WOS *Citations: 2*)

8- J. D. White, F. A. Akin, H. Oser, D. R. Crosley, "Production of the NO photofragment in the desorption of RDX and HMX from surfaces," *Appl. Optics* **50**, 74 (2011). DOI:10.1364/AO.50.000074. (WOS *Citations: 10*)

9- F. A. Akin, L. Schirra and Andrei Sanov, "Photoelectron imaging of the effect of monohydration on O_2^- photodetachment," *J. Phys. Chem.* A **110**, 8031 (2006). DOI:10.1021/jp062135i. (WOS *Citations: 32*)

10- B.Chatterjee, F. A. Akin, C. C. Jarrold, and K. Raghavachari, "Comparison of nickel-group metal cyanides and acetylides and their anions using anion photoelectron spectroscopy and density functional theory calculations," *J. Phys. Chem.* A **109**, 6880 (2005). DOI: 10.1021/jp0520704. (WOS *Citations: 8*)

11- F. A. Akin, J. Ree, Kent M. Ervin, and Hyung K. Shin, "Threshold collision-induced dissociation of diatomic molecules: A case study of energetics and dynamics of O_2^- collisions with Ar and Xe," *J. Chem. Phys.* **123**, 064308 (2005). DOI: 10.1063/1.1989321. (WOS *Citations: 7*)

12- F. A. Akin and Kent M. Ervin, "Collision-induced dissociation of HS^- (HCN): Unsymmetrical hydrogen bonding in a proton-bound dimer anion," *J. Phys. Chem.* A **110**, 1342 (2006). DOI: 10.1021/jp0540454. (WOS *Citations: 13*)

13- F. A. Akin and Caroline C. Jarrold, "Reactivity of $Al_3O_3^-$ cluster toward H_2O studied by density functional theory", *J. Chem. Phys.* **120**, 8698 (2004). DOI:10.1063/1.1687322. (WOS *Citations: 22*)

14- B.Chatterjee, F. A. Akin, C. C. Jarrold and K. Raghavachari "A comparison of stable carbonyls formed in the gas-phase reactions between group 10 atomic anions and methanol or methoxy radicals: Anion photoelectron spectroscopy and density functional theory calculations on $HNiCO^-$,$PdCO^-$, and $PtCO^-$.", *J. Chem. Phys.* **119**, 10591 (2003). DOI:10.1063/1.1619131. (WOS *Citations: 16*)

15- F. A. Akin and Caroline C. Jarrold, "Addition of water and methanol to $Al_3O_3^-$ studied by mass spectrometry and anion photoelectron spectroscopy", *J. Chem. Phys.* **118**, 5841 (2003). DOI:10.1063/1.1553466. (WOS *Citations: 33*)

16- F. A. Akin and Caroline C. Jarrold, "Separating contributions from multiple structural isomers in anion photoelectron spectra: $Al_3O_3^-$ beam hole-burning", *J. Chem. Phys.* **118**, 1773 (2003). DOI:10.1063/1.1529176. (WOS *Citations: 46*)

17- F. A. Akin, I. Jang, M.L. Schlossman, Susan B. Sinnott, G. Zajac, E.R. Fuoco, M. B. J. Wijesundara, M. Li, A. Tikhonov, S. V. Pingali, A. T. Wroble, and L. Hanley "Nanostructure of fluorocarbon films deposited on polystryrene from hyperthermal $C_3F_5^+$ ions", *J. Phys. Chem. B* **108**, 9656 (2004). DOI:10.1021/jp036129n. (WOS *Citations: 20*)

18- L. Hanley, Y. Choi, E.R. Fuoco, F. A. Akin, M.B.J. Wijesundara, M. Li, A. Tikhonov, and M. Schlossman, "Controlling the nanoscale morphology of organic films deposited by polyatomic ions", *Nucl. Instrum. Method. Phys. Res. B* **203**, 116 (2003). DOI:10.1016/S0168-583X(02)02183-3. (WOS *Citations: 20*)

19- H. Zreiqat, F. A. Akin, R. Howlett, B. Markovic, D. Haynes, S.S. Lateef, and L. Hanley, "Differentiation of Human bone derived cells grown on GRGDSP- peptide bound titanium surfaces", *J. Biomed. Mater. Res*. **64A**, 105 (2003). DOI:10.1002/jbm.a.10376. (WOS *Citations:* 64)

20- F. A. Akin, H. Zreiqat, S. Jordan, M.B.J. Wijesundara, L. Hanley, "Preparation and analysis of macroporous TiO_2 films on Ti surfaces for bone-tissue implants", *Journal of Biomed. Mater. Res.* **57**, 588 (2001). DOI:10.1002/1097-4636(20011215)57:4<588::aid-jbm1206>3.0.co;2-y. (WOS *Citations:* 124)

21- C. R. Howlett, N. Chen, X. Zhang, F. A. Akin, D. Haynes, L. Hanley, P. Revell, P. Evans, H. Zhou, and H. Zreiqat, "The effects of biomaterials chemistries on the osteoblastic molecular phenotype and osteogenesis: in vitro and in vivo studies", Chapter 22 in *Bone Engineering*, J.E. Davies, ed., Em Squared Inc. (Toronto: 2000). (GoogleScholar *Citations:* 16)

22- A. Akin, S.S. Erdem, T. Nugay, V. Aviyente, H. Resat, "A computational study of the reactivity of diethenylnaphthalenes towards anionic polymerization", *J. Chem. Soc. – Perkin Transactions II* (1), 5 (1999). DOI:10.1039/A804188A. (WOS *Citations:* 0)

Teaching:

1- Quantum Theory and Spectroscopy (CHEM 346 (undergrad.), 1/3rd of a semester)
2- Analytical Chemistry (CHEM 242 later 223 (undergrad.))
3- Instrumental Analysis I (CHEM 305 later 224) (undergrad.))
4- Computer Applications in Chemistry (CHEM 261 later 161 (undergrad.))
5- Advanced Analytical Chemistry (CHEM 513 (M.S., Ph.D.))
6- Laser Chemistry (Special Topics Course, CHEM 580 (M.S., Ph.D.))
7- Mass Spectrometry and Surface Analysis (Special Topics Course, CHEM 558 (M.S., Ph.D.))
8- Research Techniques in Chemistry (CHEM 473, CHEM 474 (undergrad.))
9- General Chemistry I (CHEM 103 (undergrad.))
10- General Chemistry II (CHEM 104 (undergrad.))
11- Fundamentals of Chemistry (CHEM 105 (undergrad.), Gen. Chem. for Eng. Majors)