

Curriculum Vitae

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Education

Ph.D. in Physical Chemistry University of Fribourg, Fribourg, Switzerland

M.S. in Organic Chemistry, University of Torino, Torino, Italy

Teaching Experience

Sept 2024 - present <i>Adjunct Instructor-Chemistry</i>	College of the Mainland	Texas City, TX
Sept 2009 - present <i>Adjunct Instructor-Chemistry</i>	Houston Community College	Houston TX
Jan 2018 -present	Lone Star College	Houston, TX

Significant Publications

1. C. Carra, J. Saha, F. A. Cucinotta, "Theoretical Prediction of the Binding Free Energy for Mutants of Replication Protein A", *J. Mol. Model.*, **2012**, *12*, 3035-3049.
2. Y. Li, M. Wang, C. Carra, F. Cucinotta. "Modularized Smad-regulated TGF β Signaling pathway", *Math. Biosci.*, **2012**, (240), 187-200.
3. C. Carra, F. A. Cucinotta, "Accurate Prediction of the Binding Free Energy and Analysis of the Mechanism of the Interaction of Replication Protein A (RPA) with ssDNA", *J. Mol. Model.*, **2012**, *18*, 2761-2783.
4. S. Rajam, R. S. Murthy, A. V. Jadhav, Q. Li, C. Keller, C. Carra, T. C. S. Pace, C. Bohne, B. S. Ault, A. D. Gudmundsdottir, "Photolysis of (3-Methyl-2H-azirin-2-yl)-Phenylmethanone: Direct Detection of a Triplet Vinylnitrene Intermediate", *J. Org. Chem.*, **2011**, *76* (24), 9934-9945.
5. C. Carra, F. A. Cucinotta, "Binding sites of the E. Coli DNA recombinase protein to the ssDNA: a computational study", *J. Biomol. Struct. Dyn.*, **2010**; *27*, 407-427.
6. C. Carra, F. A. Cucinotta, "Binding Selectivity of DNA Recombinase Protein, a Computational Approach", *J. Mol. Model.*, **2010**; (17), 133-150.
7. C. Carra, J. C. Scaiano, "Nucleohomolytic Substitution at Boron: A Computational Approach", *Eur. J. Org. Chem.*, **2008**, (26), 4454 – 4459.
8. J.C. Conrad, M. Kotyk, C. Carra, S.I. Gorelsky*, D.E. Fogg*, " Geometric and Electronic Structure of a C_1 -Symmetric Ru-Aryloxiide Metathesis Catalyst: An Experimental and Computational Study", *Organometallics* **2009**, *28*, 5424–5431.

Curriculum Vitae

9. P. Antoniotti, C. Carra, A. Maranzana, G. Tonachini, "Germyl mesolytic dissociations in the allylgermane and penta-2,4-dienylgermane radical anions. A theoretical study", *Theor. Chem. Acc.*, **2007**, (118), 253-264
10. J. Wang, G. Burdzinski, Z. Zhu, M. S. Platz, C. Carra, T. Bally "Ultrafast Spectroscopic and Matrix Isolation Studies of *p*-Biphenyl, *o*-Biphenyl, and 1-Naphthylnitrenium Cations", *J. Am. Chem. Soc.*, **2007**; *129*(26), 8380-8388.
11. M. Perry, C. Carra, M. Chretien, J. C. Scaiano, "Effect of Hexafluorobenzene on the Photophysics of Pyrene", *J. Phys. Chem. A.*, **2007**, *111*(23), 4884-4889.
12. C. Carra, R. Nussbaum, T. Bally, "Experimental and Theoretical Study of 2,6-Difluorophenylnitrene, Its Radical Cation, and Their Rearrangement Products in Argon Matrices", *Chem. Phys. Chem.*, **2006**, *7*, 1268 – 1275.
13. L. Mikelsons, C. Carra, M. Shaw, C. Schweitzer, J. C. Scaiano, "Experimental and Theoretical Study of the Interaction of Single-Stranded DNA Homopolymers and a Monomethine Cyanine Dye: Nature of Specific Binding", *Photochem. Photobiol. Sci.*, **2005**, *4*(10), 798-802.
14. C. Carra, T. Bally, A. Albini, "Role of Conformation and Electronic Structure in the Chemistry of Ground and Excited State *o*-Pyrazolylphenylnitrenes", *J. Am. Chem. Soc.* **2005**, *127*, 5552 -5562.
15. C. Carra, N. Iordanova, S. Hammes-Schiffer, "'Proton-Coupled Electron Transfer in a model for Tyrosine Oxidation in Photosystem II", *J. Am. Chem. Soc.*, **2003**, *125*, 10429-10436.
16. C. Carra, G. Ghigo, G. Tonachini, "Methyl and Silyl Mesolytic Dissociations in Radical Cations and Radical Anions of But-1-ene, Allylsilane, Hexa-1,3-diene, and Penta-2,4-dienylsilane. CAS-MCSCF and Coupled Cluster Theoretical Study", *J. Org. Chem.*, **2003**, *68*, 6083-6095.
17. C. Carra, N. Iordanova, S. Hammes-Schiffer, "Proton-Coupled Electron Transfer in DNA-Acrylamide Complexes", *J. Phys. Chem. B*, **2002**, 8415-8421.
18. C. Carra, T. Bally, T. A. Jenny and A. Albini, "Thermoreversible Photocyclization of a Pyrazolotriazole to a Triazasemibullvalene: a Novel Electrocyclic Reaction", *Photochem. Photobiol. Sci.*, **2002**, *1*, 1-7.
19. K. Schroeter, D. Schröder, H. Schwarz, G. D. Reddy, O. Wiest, C. Carra, and T. Bally, "Ion Chemistry of anti-*o,o'*-Dibenzene", *Chem. Eur. J.*, **2000**, *6*, 4422-4430.
20. T. Bally, C. Carra, S. Matzinger, L. Truttmann, F. Gerson, R. Schmidlin, M. S. Platz, and A. Admasu, "π- and σ-Diazo Radical Cations: Electronic and Molecular Structure of a Chemical Chameleon", *J. Am. Chem. Soc.*, **1999**, *121*, 7011-7019.
21. T. Bally, C. Carra, M. P. Fülcher and Z. Zhu, "Electronic Structure of the Naphthalene Radical Cation and Some Simple Alkylated Derivatives", *J. Chem. Soc., Perkin Trans. 2*, **1998**, 1759-1765.
22. C. Carra, F. Fiussello, and G. Tonachini, "Nature of Methyl and Silyl Mesolytic Dissociations in Substituted Cyclopropenyl Radical Cations and Anions. A CAS-MCSCF and CCSD(T) Theoretical Study", *J. Org. Chem.*, **1999**, *64*, 3867-3877.
23. F. Bouchard, V. Brenner, C. Carra, J. W. Hepburn, G. K. Koyanagi, T. B. McMahon, G. Ohanessian, and M. Peschke, "Energetics and Structure of Complexes of Al⁺ with Small Organic Molecules in the Gas Phase", *J. Phys. Chem. A*, **1997**, *101*, 5885-5894.