

# CURRICULUM VITAE

## Richard Mabbs Ph.D., B.Sc., MRSC

### Address:

Department of Chemistry  
Washington University in St. Louis  
Campus Box 1134  
One Brookings Drive  
St. Louis, MO 63130-4899  
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[mabbs@wustl.edu](mailto:mabbs@wustl.edu)

### Education:

Ph.D. in Physical Chemistry, University of Nottingham, Nottingham, UK, 1995  
Thesis Title: 'Unimolecular Photodissociation Dynamics'  
Supervisor: Dr. Mark Brouard

B.Sc. Hons. Chemistry (2[i]), University of Nottingham, Nottingham, UK, 1990

### Professional History:

Jul 2012-

Associate Professor, Chemistry Department, Washington University in St. Louis, MO

Jul 2005-Jun 2012

Assistant Professor, Chemistry Department, Washington University in St. Louis, MO

Aug 2002-Jun 2005

Postdoctoral Research Associate (with Prof. Andrei Sanov), Chemistry Department, University of Arizona, Tucson, AZ

Jan 1998- Jul 2002

Lecturer in Chemistry, University of Botswana, Gaborone, Botswana

1996-1997

Data Chemist, Okavango Pharmacy Pty., Maun, Botswana

1994-1995

Research Tech., International Combustion Ltd., Derby, UK

### Research Interests:

Physical chemistry/chemical physics of anionic species and clusters; interaction of electrons with neutral atoms and molecules; chemical reaction dynamics of photon and electron capture induced reactions; structure of molecular and cluster anions.

**Research Support:****Current:**

National Science Foundation CHEM - Chemical Structure Dynamics and Mechanisms A Program

“Electron-Molecule Temporary States: Vibronic Coupling in Excited Anions”

09/01/2016-08/31/2020

\$440,000

**Expired:**

International Center for Advanced Renewable Energy & Sustainability (ICARES)

“Photoelectron Imaging of Ni<sup>-</sup>·CO<sub>2</sub> interactions important to CO<sub>2</sub> Reduction and Sequestration”

5/1/2013-8/31/2014

\$30,802

National Science Foundation Faculty Early Career Development (CAREER) Award: # CHE - 0748738

“CAREER: Femtosecond Time Resolution in Electron Collision Initiated Reactions”

3/1/2008-2/28/2013

\$607,120

American Chemical Society Petroleum Research Fund Series G: #45076-G6

“Electron Transfer in Cluster Anions – Dissociative Electron Attachment Processes in Real Time”

9/1/2006-8/31/2008

\$35,000

**Teaching:****Courses (Washington University in St. Louis)**

**CHEM 585/580** Molecular Reaction Dynamics

**CHEM 106** Introductory General Chemistry II

**CHEM 111** General Chemistry I

**CHEM 112** General Chemistry II

**CHEM 401** Physical Chemistry I

**CHEM 421** Physical Chemistry III

**CHEM 423/403** Chemical Kinetics

**Courses (University of Botswana)****4 Year BSc.**

**Yr. 4. Physical Chemistry:** (Raman Spectroscopy, Reaction Dynamics, Chain Reactions)

**Yr. 3. Physical Chemistry:** (Photochemistry, Molecular Spectroscopy, Corrosion, Phase Equilibria)

**Yr. 2. Physical Chemistry:** (Thermodynamics, Kinetics.)

**3 Year B.Ed. Sec. (Diploma conversion)**

**Yr. 1. Physical Chemistry:** Thermodynamics.

**B. Ed. Nursing Education (Diploma conversion)**

**Yr. 1** Introductory Chemistry for Nursing Education.

**Additional Tutorial Classes.**

**4 Year BSc. Yr. 2** Electrochemistry. **4 Year BSc. Yr. 2.** General chemistry

**Laboratory Supervision**

**Yr. 3.** Physical chemistry, **Yr. 2.** Physical chemistry, **Yr. 1.** General chemistry

**Service:**

**Washington University**

**Committee Membership**

Faculty Library Committee (2016-2018)

Graduate Recruitment and Admissions Committee (2005- )

Seminar Committee (2005-06)

Library Committee Member (2006- ), and Chairman (2010- )

Chemistry Safety Committee (Chair, 2017- )

**Other**

Department Study Abroad Advisor (2009- )

Department Marshal, Washington University Commencement Ceremony (2006, 2017)

**University of Botswana**

**Committee Membership**

Secretary, Departmental Board (1998-99)

Secretary, Departmental Health and Safety Committee (1998-2002)

Chairman, Departmental Computer Committee (2001-02)

Science Faculty Timetable Committee (1999-2002)

University distance education committee (2000-02)

**Review/Referee Activities**

**Journals**

Journal of the American Chemical Society

Journal of Chemical Physics

PhysicalChemistryChemicalPhysics

Journal of Physical Chemistry A

Bulletin of the Ethiopian Chemical Society

Botswana Journal of Technology

**Grant Proposals:**

NSF, CAREER

NSF Analytical and Surface Chemistry Program

NSF Experimental Physical Chemistry Program

NSF DMR

NSF Instrumentation Panel: Laser/Raman/FTIR/Optical Spectroscopy

DOE Chemical Sciences, Geological Sciences and Biosciences Division

US Civilian Research and Development Foundation (Cooperative Grants Program)

Washington University SURF fellowships

**Research Associates**

**Post Doctoral**

Jie Wei (2008-2010)

### **Graduate Students**

Matthew Van Duzor	Jan 2006-2011	Graduated (Ph.D.) May 2011
Foster Mbaiwa	Jan 2007-2011	Graduated (Ph.D.) December 2011
Joshua Lasinski	Jan 2009-2013	Graduated (Ph.D.) May 2013
Nicholas Holtgrewe	Jan 2009-2013	Graduated (Ph.D.) October 2013
Diep Dao	Jan 2010-2014	Graduated (Ph.D.) July 2014
Justin Lyle	Jan 2014-2018	Graduated (Ph.D.) August 2018
Suharson Ravishankar Chandramoulee	Jan 2016-Present	
Annie C. Hart	Jan 2017-present	

### **Undergraduate Research Students**

Mark Sobin	2007	
Caroline Auchter	2008	
Mustafa Ahmed	2008	(SURF Fellowship)
Peter Yen	2008-2010	(Currently in Washington University MD program)
Ryan Wang	2010-2011	(Undergraduate Research Award, Mt. Sinai Medical Program, beginning Fall 2011)
Grace Venezia	2013	
Medhi Siddiqui	2013	
Andrew Smith	2013	
Annie Peterson	2015	
Ashley Shin	2016-2017	
Joey Spelberg	2017-current	

### **(High School) Students and Teachers as Research Scientists (STARS) Program**

Jack Chen	2007	(MO scholars top 100, attended Duke University, Biomedical Engineering)
Jonathan Powers	2007	(attended Yale University)
Tulsi Singh	2008	(attended UMKC, BA/MD 6 year program)
Sol Lee	2008	(attended NYU)
Tony Melillo	2009	(STARS award for Research Excellence, attended U. Minnesota Neuroscience and Classical Studies)
David Bruns-Smith	2009	(LMI Aerospace Inc. Award for Excellence in Research, National Merit Scholarship, attended Yale University, Engineering)
Nathaniel Stein	2010	(attended Washington University, Physics and Political Science)
Jacob Luciani	2011	
Michael Esker	2012	(LMI Aerospace Inc. Award for Excellence in Research)
Jack Yungbluth	2013	(attending University of Tulsa, Chemical engineering from 2014)
Tommy Ristevski	2013	
Joshua Kazdan	2014	(LMI Aerospace Inc. Award for Excellence in Research, First Place, Academy of Science-St. Louis Science Fair Honors Division, Attending Stanford University)

Benjamin Hahn	2015	(LMI Aerospace Inc. Award for Excellence in Research, attending USC on a presidential scholarship)
Olivia Wedig	2016-2017	(2016 STARS Program, Award for Excellence in Research, 2017 STARS research associate, Attending U. Penn.)
Sopie Paul	2017	(Attending Carnegie Mellon University with an intended major in Materials Science and minor in Entrepreneurship and Innovation)
Elvis Wei	2018	(2018 STARS Award for Excellence in Research)

### **Collaborators**

Dr. Thomas Jagau, Postdoc University of Southern California

Professor Anna Krylov University of Southern California

Andrei Sanov, University of Arizona

Piotr Piecuch, Michigan State University

## Publications:

39. *Spectroscopy of Temporary Anion States: Renner-Teller Coupling and Electronic Autodetachment in Copper Difluoride Anion*  
Justin Lyle, Thomas-C. Jagau, Richard Mabbs *Faraday Discuss.* **DOI:** 10.1039/c8fd00224
38. *Characterization of the vibrational properties of copper difluoride anion and neutral ground states via direct and indirect photodetachment spectroscopy*  
Justin Lyle, Sudharson Ravishankar Chandramoulee, Jacob, R. Hamilton, Blaine A. Traylor, Timothy L. Guasco, Thomas-C. Jagau, Richard Mabbs *J. Chem. Phys.* **DOI:** 10.1063/1.5040122
37. *Photoelectron Imaging of Anions Illustrated by 310 nm Detachment of  $F^-$*   
Justin Lyle, Sudharson Ravishankar Chandramoulee, C. Annie Hart, Richard Mabbs *Journal of Visual Experiments* **DOI:** 10.3791/57989
36. *Channel branching ratios in  $CH_2CN^-$  photodetachment: Rotational structure and vibrational energy redistribution in autodetachment*  
Justin Lyle, Olivia Wedig, Sahil Gulania, Anna I. Krylov, Richard Mabbs *Journal of Chemical Physics* (2017), **147**, 234309
35. *Same but Different: Dipole-Stabilized Shape Resonances in  $CuF^-$  and  $AgF^-$*   
Thomas-C. Jagau, Diep Bich Dao, Nicholas S. Holtgrewe, Anna I. Krylov, Anna I, Richard Mabbs *Journal of Physical Chemistry Letters* (2015), **6**, 2786-2793
34. *The effect of the dipole bound state on  $AgF^-$  vibrationally resolved photodetachment cross sections and photoelectron angular distributions*  
Diep Bich Dao, Richard Mabbs *J. Chem. Phys.* **DOI:** 10.1063/1.5040122
33. *Photoelectron Angular Distributions as Probes of Cluster Anion Structure:  $I^-(H_2O)_2$  and  $I^-(CH_3CN)_2$*   
Foster Mbaiwa, Nicholas Holtgrewe, Diep Bich Dao, Joshua Lasinski, and Richard Mabbs\* *J. Phys. Chem. A* **DOI:** 10.1021/jp4104596
32. *Photodetachment and Photodissociation of the linear  $OCuO^-$  Molecular Anion: Energy and Time dependence of  $Cu^-$  Production*  
R. Mabbs\*, N. Holtgrewe, D. Dao, and J. Lasinski  
*Phys. Chem. Chem. Phys.* 2013, **DOI:** 10.1039/C3CP52986J
31. *Inter-channel effects in monosolvated atomic iodide cluster anion detachment: Correlation of the anisotropy parameter with solvent dipole moment*  
F. Mbaiwa, D. Dao, N. Holtgrewe, J. Lasinski and R. Mabbs\*  
*J. Chem. Phys.* **136** 114303 2012
30. *Photoelectron Imaging: Advanced Research Techniques as Teaching Tools*  
R. Mabbs, K. Pichugin, E. Grumblin, A. Sanov\*

*J. Chem. Ed.* **88** 1515 2011

29.  $\Gamma \cdot (\text{CH}_3\text{I})_2$  Photoexcitation: The Influence of Dipole Bound States on Detachment and Fragmentation

M. Van Duzor, F. Mbaiwa, J. Lasinski, N. Holtgrewe, and R. Mabbs\*

*J. Chem. Phys.* **134** 214301 2011

28. Near Threshold  $\text{Cl}^- \cdot \text{CH}_3\text{I}$  Photodetachment: Apparent  $^2P_{1/2}$  Channel Suppression and Enhanced  $^2P_{3/2}$  Channel Vibrational Excitation

M. Van Duzor, J. Lasinski, F. Mbaiwa, D. Dao, N. Holtgrewe, R. Mabbs\*

*J. Chem. Phys.* **134** 184315 2011

27. Vibronic Coupling in the Superoxide Anion: The Vibrational Dependence of the Photoelectron Angular Distribution

M. Van Duzor, F. Mbaiwa, J. Wei, T. Singh, R. Mabbs\*, A. Sanov, S.T. Gibson, S. J. Cavanagh, B.R. Lewis, J.R. Gascooke

*J. Chem. Phys.* **133** 174311 2010

26. Photodetachment from  $\Gamma \cdot \text{CH}_3\text{X}$  ( $\text{X}=\text{I}, \text{Br}, \text{Cl}$ )

M. Van Duzor, F. Mbaiwa, J. Wei, R. Mabbs\*

*J. Chem. Phys.* **133** 144303 2010

25. Observation of Vibration-Dependent Electron Anisotropy In  $\text{O}_2^-$  Photodetachment

R. Mabbs\*, F. Mbaiwa, J. Wei, M. Van Duzor, S.T. Gibson, S. J. Cavanagh, B.R. Lewis  
*Physical Review A* **82** 011401 2010

24. Threshold Effects in  $\Gamma \cdot \text{CH}_3\text{CN}$  and  $\Gamma \cdot \text{H}_2\text{O}$  Cluster Anion Detachment: The Angular Distribution as an Indicator of Electronic Autodetachment

F. Mbaiwa, J. Wei, M. Van Duzor, R. Mabbs\*

*J. Chem. Phys.*, **132** 134304 2010

23. Direct and Indirect-Detachment in the Iodide-Pyrrole Cluster Anion: The Role of Dipole Bound and Neutral Cluster States

F. Mbaiwa, M. Van Duzor, J. Wei, R. Mabbs\*

*J. Phys. Chem. A* **114** 1539 2010

22. Intra-Cluster Photoelectron Interactions: Scattering and Dissociative Attachment in Halide-Methyl Halide Cluster Anions

R. Mabbs\*, M. Van Duzor, F. Mbaiwa, J. Wei

*J. Phys. Conf. Ser.* **194** 012051 2009

21. The Effect of Intra-Cluster Photoelectron Interactions on the Angular Distribution in  $\Gamma \cdot \text{CH}_3\text{I}$  Photodetachment

M. Van Duzor, J. Wei, F. Mbaiwa, R. Mabbs\*

*J. Chem. Phys.* **131** 204306 2009

20. *Photoelectron Imaging: An Experimental Window into Electronic Structure*  
R. Mabbs\*, E. Grumbling, K. Pichugin, A. Sanov  
*Chem. Soc. Rev.* **38** 2169 2009
19. *Photoelectron Imaging of Negative Ions*  
A. Sanov\* and R. Mabbs  
*Int. Rev. Phys. Chem.* **27** 53 2008
18. *Photochromism, Anomalous Multi-Banded Fluorescence and Laser Properties of Some Amino- and Tosyl-Amino Derivatives of Oxadiazole*  
N. Nijegorodov, V. Zvolinski, P.V.C. Luhanga\*, R. Mabbs and J. Ahmad  
*Spectrochim. Acta A* **65** 196 2006
17. *Dynamic Molecular Interferometer: Probe of Inversion Symmetry in  $I_2^-$  Photodissociation*  
R. Mabbs, K. Pichugin and A. Sanov\*  
*J. Chem. Phys.* **123** 054329 2005  
[Reprinted as selected article in *Virtual Journal of Ultrafast Science* **4**(9) 2005]
16. *Time-resolved Imaging of the Reaction Coordinate*  
R. Mabbs, K. Pichugin and A. Sanov\*  
*J. Chem. Phys.* **122** 174305 2005  
[Reprinted as selected article in *Virtual Journal of Ultrafast Science* **4**(6) 2005]
15. *Effects of Solvation on the Photoelectron Angular Distributions within  $(CO_2)_n^-(H_2O)_m$*   
E. Surber, R. Mabbs, T. Habteyes and A. Sanov\*  
*J. Phys. Chem. A* **109** 4452 2005
14. *Solvation Effects on Photoelectron Anisotropy and Photodetachment Cross Section*  
R. Mabbs, E. Surber and A. Sanov\*  
*J. Chem. Phys.* **121** 054308 2005
13. *Time Resolved Electron Detachment Imaging of the  $I^-$  Channel in  $I_2Br^-$  Photodissociation*  
R. Mabbs, K. Pichugin, E. Surber and A. Sanov\*  
*J. Chem. Phys.*, **121** 265 2004  
[Reprinted as selected article in *Virtual Journal of Ultrafast Science* **3**(7) 2004]
12. *Effects of Solvation and Core Switching on the Photoelectron Angular Distributions from  $(CO_2)_n^-$  and  $(CO_2)_n^- \cdot H_2O$*   
R. Mabbs, E. Surber, L. Velarde and A. Sanov\*  
*J. Chem. Phys.* **120** 5148 2004
11. *An Experimental Manifestation of Distinct Electronic-Structural Properties of Covalent Dimer Anions of  $CO_2$  and  $CS_2$*   
R. Mabbs, E. Surber and A. Sanov\*  
*Chem. Phys. Lett.* **381** 479, 2003
10. *Photoelectron Imaging of Negative Ions: Atomic Anions to Molecular Clusters*



R. Mabbs, E. Surber and A. Sanov\*  
*Analyst* **128** 765 2003

9. *Probing the Electronic Structure of Small Molecular Anions by Photoelectron Imaging*  
E. Surber, R. Mabbs and A. Sanov\*,  
*J. Phys. Chem. A.* **107** 8215 2003
8. *Comprehensive Study of Solar Conditions in Mozambique: The Effect of Trade Winds on Solar Components*  
N. I. Nijegorodov\*, K. R. S. Devan, H. Simao and R. Mabbs  
*Renew. Energ.* **28** 1965 2003
7. *Fluorescence and Laser Properties of D<sub>2</sub>-, C<sub>2</sub> and D<sub>3</sub>-Symmetry Series Oligophenylenes*  
R. Mabbs\*, N. Nijegorodov and W. S. Downey  
*Spectrochim. Acta A* **59** 1329 2003
6. *Influence of Weak and Strong Donor Groups on the Fluorescence Parameters and the Intersystem Crossing Rate Constant*  
N. Nijegorodov, R. Mabbs\* and D. P. Winkoun  
*Spectrochim. Acta A* **59** 595 2003
5. *Luminescence-Laser Classification of Heteroaromatic and Aromatic Compounds*  
N. Nijegorodov\* and R. Mabbs  
*Spectrochim. Acta A* **58** 349 2001
4. *Evolution of Absorption, Fluorescence, Laser and Chemical Properties in the Series of Compounds Perylene, Benzo(ghi)perylene and Coronene*  
N. Nijegorodov\*, R. Mabbs and W. S. Downey  
*Spectrochim. Acta A.* **57** 2673 2001
3. *The Influence of Molecular Symmetry and Topological Factors on the Internal Heavy Atom Effect in Aromatic and Heteroaromatic Compounds*  
N. Nijegorodov\* and R. Mabbs  
*Spectrochim. Acta A.* **57** 1449 2001
2. *The Dependence of the Fluorescence Properties, Laser Properties and Photochemical Stability of Aromatic Compounds on the Molecular Symmetry*  
N. Nijegorodov\* and R. Mabbs  
*Spectrochim. Acta A.* **56** 2157 2000
1. *Vibrationally Mediated Photodissociation of H<sub>2</sub>O<sub>2</sub> (4ν<sub>OH</sub>): Rotational State Dependent Photodissociation Cross Sections and Vibrational State Mixing*  
M. Brouard\* and R. Mabbs  
*Chem. Phys. Lett.* **204** 543 1993

#### **Invited Lectures and Professional Presentations**

44. *Photoelectron Angular Distributions as Indicators of Resonances* **Invited Oral** Telluride workshop “Theory of Electronic Resonances” Telluride, CO, July 22-26, 2019
43. *Spectroscopy of Temporary Anion States: Renner-Teller Coupling and Electronic Autodetachment in Copper Difluoride Anion* **Invited Oral** Faraday Discussion Meeting “Advances in ion spectroscopy: from astrophysics to biology,” York, UK April 8-10, 2019
42. *Interactions of Electrons With Molecules: Studies of Excited Anion States* **Seminar**, Chemistry Department, Indiana University, Bloomington, IN, 20<sup>th</sup> September 2018
41. *Interactions of Electrons with Molecules: Probing Excited Anion States* **Invited Oral** International Conference on Chemical Bonding, July 13 – 17 2018, Kauai, HI
40. *Imaging quantum objects: What free electrons can tell us about bound electronic states* **Departmental Seminar**, Chemistry Department, Southern Illinois University Edwardsville, 26<sup>th</sup> September 2017
39. *Probing vibrational modes of unstable anion states and channel specific autodetachment* **Invited Oral**, Advances in Theory of Electron Resonances, TSRC, Telluride, CO, July 16 – July 21 2017
38. *Imaging quantum objects: What free electrons can tell us about bound electronic states* **Departmental Seminar**, Chemistry Department, Bradley University, 17<sup>th</sup> November 2016
37. *Imaging quantum objects: What free electrons can tell us about bound electronic states* **Departmental Seminar**, Chemistry Department, Eastern Illinois University, 20<sup>th</sup> October 2014
36. *Low Energy Electron Molecule Interactions—Photoelectron Imaging of Resonance States* **Departmental Seminar** Chemistry Department Marquette University, 18<sup>th</sup> September 2014
35. *Electron Molecule Interactions: Structure and Dynamics of Anionic Species* **Departmental Seminar** Millikin University, IL Chemistry Department 24<sup>th</sup> October 2013
34. *Anion Photodetachment Imaging: Electron-Neutral Molecule Interactions from Anion Precursors* **Departmental Seminar** University of Nebraska, Lincoln (Physics Department), 26<sup>th</sup> September 2013
33. *Energy Transfer in Clusters, Droplets, and Aerosols* as **Discussion Leader** 2013 Gordon Research Conference on Molecular Energy Transfer. Jan. 13-18, 2013 in Ventura, CA.
32. **Invited Oral** hot topic, 2012 Gordon Research Conference on Photoions, Photoionization and Photodetachment, February 12-17, 2012, Galveston, TX

31. *Imaging Quantum Objects: Free Electrons as Probes of Bound Electronic Structure*  
Washburn University Chemistry Club Seminar, Washburn University, Topeka, KS 14<sup>th</sup>  
October 2011
30. *Cluster Anions as Molecular Scale Electron Beam Instruments? Photodetachment Angular  
Distributions as Indicators of Electron-Molecule Interactions*  
**Departmental Seminar** University of Arizona 24<sup>th</sup> February 2011
29. *Cluster Anions as Molecular Scale Electron Beam Instruments? Photodetachment Angular  
Distributions as Indicators of Electron-Molecule Interactions*  
**Departmental Seminar**, The Ohio State University 21<sup>st</sup> February 2011
28. *Cluster Anions as Molecular Scale Electron Beam Instruments? Photodetachment Angular  
Distributions as Indicators of Electron-Molecule Interactions*  
**Departmental Seminar** Washington University in St. Louis, 8<sup>th</sup> February 2011
27. *Cluster Anions as Molecular Scale Electron Beam Instruments? Photodetachment Angular  
Distributions as Indicators of Electron-Molecule Interactions*  
**Departmental Seminar** Texas A&M University, 16<sup>th</sup> November 2010
26. *Cluster Anions as Molecular Scale Electron Beam Instruments? Photodetachment Angular  
Distributions as Indicators of Electron-Molecule Interactions*  
**Departmental Seminar** JILA, University of Colorado Boulder, 15<sup>th</sup> October 2010
25. *Cluster Anions as Molecular Scale Electron Beam Instruments? Photodetachment Angular  
Distributions as Indicators of Electron-Molecule Interactions*  
**Departmental Seminar** Wayne State University, MI, 13<sup>th</sup> October 2010
24. *Super Oxide Photoelectron Angular Distributions: Vibrational Dependence as a  
Consequence of Born-Oppenheimer Behavior*  
R. Mabbs, M. Van Duzor, F. Mbaiwa, J. Wei  
**Contributed Oral** Presentation 65<sup>th</sup> OSU International Symposium on Molecular  
Spectroscopy, June 21-25, 2010 Columbus, Ohio
23. *Cluster Anions as Molecular Scale Electron Beam Instruments: Photodetachment Angular  
Distributions as Indicators of Electron-Molecule Interactions*  
**Departmental Seminar** University of Manchester, UK, 28<sup>th</sup> May 2010
22. *Cluster Anion Photoelectron Angular Distributions as Indicators of Resonance Phenomena*  
R. Mabbs, M. Van Duzor, J. Wei, F. Mbaiwa  
**Contributed Oral** Presentation 239<sup>th</sup> ACS National Meeting, March 21-25, 2010, San  
Francisco, CA
21. *Intra-Cluster Photoelectron Interactions: Scattering and Dissociative Attachment in Halide-  
Methyl Halide Cluster Anions*  
R. Mabbs, M. Van Duzor, F. Mbaiwa, J. Wei

**Contributed Oral** Presentation 238<sup>th</sup> ACS National Meeting, August 16 – 20, 2009, Washington, DC

20. *Intra-Cluster Photoelectron Interactions: Scattering and Dissociative Attachment in Halide-Methyl Halide Cluster Anions*  
R. Mabbs, M. Van Duzor, F. Mbaiwa, J. Wei  
**Selected Oral** Presentation and poster XXVI ICPEAC meeting, July 22 – 28, 2009, Kalamazoo, MI
19. *Photoelectron Angular Distributions – The Effect of Photodetachment in Atoms, Molecules and Cluster Anions*  
**Departmental Seminar** University of Southern California, CA, 9<sup>th</sup> February 2009
18. *Photoelectron Imaging: Photodetachment to Probe Photoinitiated Processes*  
R. Mabbs, M. van Duzor, F. Mbaiwa, J. Wei  
**Contributed Oral** Presentation 43<sup>rd</sup> ACS Midwest Regional Meeting, October 8 – 11, 2008, Kearney, NE
17. *Intracluster Electron Interactions*  
R. Mabbs, M. van Duzor, F. Mbaiwa  
**Contributed Oral** Presentation 236<sup>th</sup> ACS National Meeting, August 17 – 21, 2008, Philadelphia, PA, USA
16. *Imaging Photoelectrons: Photodetachment as a Probe of Photon-Initiated Processes*  
R. Mabbs, M. van Duzor, F. Mbaiwa  
**Contributed Poster** Presentation XXII IUPAC Symposium on Photochemistry, July 28 – August 1, 2008, Gothenburg, Sweden
15. *Anionic Species as Electron Transfer Induced Reaction Precursors*  
R. Mabbs, M. van Duzor, F. Mbaiwa  
**Contributed Oral** Presentation, 235<sup>th</sup> ACS National Meeting, April 6 – 10, 2008, New Orleans, Louisiana, USA
14. *Sequential Solvation: Cluster Anion Structure and Photoejection Dynamics*  
M. van Duzor, R. Mabbs  
**Contributed Poster** Presentation, Photoions, Photoionization and Photodetachment, Gordon research conference, January 27 – February 1, 2008, Il Ciocco, Italy.
13. *Imaging Free Electron Wave Functions: Chemistry (as it Happens) From the Electronic Structure Perspective*  
**Departmental Seminar** Creighton University, NE, 1<sup>st</sup> February 2007
12. *Photoelectron Imaging: Modern Research Techniques in Quantum Chemistry Teaching*  
R. Mabbs, A. Sanov  
**Contributed Oral** Presentation, 232<sup>nd</sup> ACS National Meeting, Sept. 10 - 14, 2006 San Francisco, CA USA

11. *Molecular and Cluster Anion Properties: Application to Dissociative Attachment Processes in Real Time.*  
R. Mabbs, A. Sanov, K. Pichugin  
**Poster** Presentation, 232<sup>nd</sup> ACS National Meeting, Sept. 10 - 14, 2006 San Francisco, CA USA
10. *Atomic, Molecular and Cluster Anions: Electronic Structural Properties Applied To Time Resolved Dissociative Electron Attachment*  
R. Mabbs, A. Sanov, K. Pichugin, **Poster** Presentation. Gordon Research Conference: Photoions, Photoionization & Photodetachment, Santa Ynez, CA, 2006
9. *Time Resolved Imaging along the Reaction Coordinate*  
R. Mabbs, K. Pichugin, A. Sanov  
**Invited Oral** Presentation, 2005 Optics/Laser Science XXI Conference, Tucson Arizona, October 2005
8. *Time Resolved Electronic Structure Evolution and Solvation Effects via Pump-Probe Photodetachment Imaging of Molecular Anions*  
R. Mabbs, K. Pichugin, S. E. Surber and A. Sanov, **Poster** Presentation. MOLEC XV: International Conference on Dynamics of Molecular Systems, Nunspeet, The Netherlands, September 2004
7. *Time Resolved Electronic Structure Evolution via Pump-Probe Photodetachment Imaging of Anion Photodissociation*  
R. Mabbs, K. Pichugin, S. E. Surber and A. Sanov, **Selected Oral** "Hot Topic" and **Poster** Presentation. Gordon Research Conference: Multiphoton Processes, Tilton School, Tilton, New Hampshire, June 2004
6. *Electronic Structure Transformation Through Negative Ion Photoelectron Angular Distributions*  
R. Mabbs, S. E. Surber and A. Sanov, **Poster** Presentation, Sci-Mix and Physical Sessions. 227th ACS National Meeting, March-April 1, 2004, Anaheim, California, USA
5. *Anion Photoelectron Angular Distributions through 1, 2 and 3 Photon Detachment Imaging Studies*  
R. Mabbs, S. E. Surber and A. Sanov, **Poster** Presentation, Gordon Research Conference: Photoions, Photoionization & Photodetachment, Oxford, UK 2003
4. *The Influence of Donor Groups on Fluorescence Parameters, In Particular the Intersystem Crossing Rate Constant*  
N. Nijegorodov and R. Mabbs, **Poster** Presentation, XXth International Conference on Photochemistry, 2001, Moscow, Russia.
3. *p- and m- Oligophenylenes in Active Laser Oscillation and Passive Mode Locking*  
N. Nijegorodov and R. Mabbs, **Poster** Presentation, XXth International Conference on Photochemistry, 2001, Moscow, Russia.

2. *New Aspects of the Internal Heavy Atom Effect: The Influence of Molecular Symmetry and Topological Factors on Fluorescence and Laser Properties of Aromatic and Heteroaromatic Compounds*

N. Nijegorodov and R. Mabbs, **Poster** Presentation, Photochemistry and Photophysics 2000, Oeiras, Portugal.

1. *The Nature of Multi-Banded Fluorescence of o-Tosylamino and amino Derivatives of 2,5-Diaryl-1,3,4-Oxadiazole*

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