

CURRICULUM VITAE

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

Address:

Department of Chemistry
Washington University in St. Louis
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One Brookings Drive
St. Louis, MO 63130-4899
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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.

Past Research Support:

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

International Center for Advanced Renewable Energy & Sustainability (ICARES)
“Photoelectron Imaging of Ni⁻·CO₂ interactions important to CO₂ 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 Principles of 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**

A&S Faculty Library Committee (2016-2018)
Graduate Recruitment and Admissions Committee (2005- 2022)
Seminar Committee (2005-06)
Library Committee Member (2006-2021), and Chair (2010-2021)
Chemistry Safety Committee (Chair, 2017- 2022)
Undergraduate Work Committee, Chemistry (Chair, 2022-)
Chemistry Executive Council (2022 -)
Chemistry Department By-Laws Committee (2021 -)
Literacies for Life and Career – Literacies Task Force (2024)

Other

Department Study Abroad Advisor (2009-)
Department Marshal, Washington University Commencement Ceremony (2006, 2017, 2024)
Director of Undergraduate Studies, Chemistry (2022 -)
Washington University Physical Sciences Representative to Mid-States Consortium for Math and Science (2022-)

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	2006-2011	Graduated (Ph.D.) May 2011
Foster Mbaiwa	2007-2011	Graduated (Ph.D.) December 2011
Joshua Lasinski	2009-2013	Graduated (Ph.D.) May 2013
Nicholas Holtgrewe	2009-2013	Graduated (Ph.D.) October 2013
Diep Dao	2010-2014	Graduated (Ph.D.) July 2014
Justin Lyle	2014-2018	Graduated (Ph.D.) August 2018
Suharson Ravishankar Chandramoulee		Graduated (M.Sc.) July 2022
Annie C. Hart	2017- 2023	Graduated (Ph.D.) July 2023
Pratichhya Adikari	2022- present	
Carlos Bean-Chevez	2024- present	
Ryan Gagnon	2024- 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- 2020	
Audrey Brecher	2018 - 2022	
Cyrus Salamassi	2021 - 2022	
Robert Mize	2023 - present	
Charlie Fioriglio	2023 - present	
Karl Lyu	2024 - present	

(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, Attended U. Penn., now PhD candidate at U Chicago)
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)

Recent Collaborators

Kade Head-Marsden Washington University in St. Louis

Thomas Jagau, University of Leuven

Anna Krylov University of Southern California

Andrei Sanov, University of Arizona

Publications:

43. *The Overlooked Role of Excited Anion States in NiO₂⁻ Photodetachment* Hart, C.A., Schlimgen, A. W., Dao, D.B., Head-Marsden, K., Mabbs, R., J. Chem.Phys., (2024) **160**, 044304 DOI: doi.org/10.1063/5.0188066
42. *Dipole Effects in the Photoelectron Angular Distributions of the Sulfur Monoxide Anion* Ru, B., Hart, C.A., Mabbs, R., Gozem, S., Krylov A.I. & Sanov, A., Phys.Chem.Chem.Phys., (2022), DOI: 10.1039/D2CP03337B
41. *Role of the Electron–Dipole Interaction in Photodetachment Angular Distributions* Hart, C. A., Lyle, J., Spellberg, J., Krylov, A. I., & Mabbs, R., J. Phys. Chem. Lett. (2021) **12**, 10086-10092 DOI: 10.1021/acs.jpcclett.1c02882
40. *Stabilized resonances are no less exciting* Hart, C. A., & Mabbs, R., Nature Chemistry (2021) **13**, 721-22 DOI: 10.1038/s41557-021-00755-6
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. (2019), **217**, 533–546 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. (2018) **149**, 084302 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 (2018) **137** e57989 DOI: 10.3791/57989
36. *Channel branching ratios in CH₂CN⁻ photodetachment: Rotational structure and vibrational energy redistribution in autodetachment* Justin Lyle, Olivia Wedig, Sahil Gulania, Anna I. Krylov, Richard Mabbs J. Chem. Phys. (2017), **147**, 234309 DOI: 10.1063/1.5001475
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 J. Phys. Chem. Letters (2015), **6**, 2786-2793 DOI: 10.1021/acs.jpcclett.5b01174
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: $\Gamma^{\cdot}(\text{H}_2\text{O})_2$ and $\Gamma^{\cdot}(\text{CH}_3\text{CN})_2$*
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 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 $I^- \cdot CH_3I$ 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. Grumblin, 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 I₂Br⁻ 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 (CO₂)_n⁻ and (CO₂)_n⁻·H₂O*
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 CO₂ and CS₂*
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 D₂-, C₂ and D₃-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 H₂O₂ (4v_{OH}): 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

45. *Finding Resonances with Photoelectron Angular Distributions - What the Experimentalist Needs to Know* **Invited Oral** Telluride workshop “Advances in the Theory of Electronic Resonances” Telluride, CO, July 13-17, 2021
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, 20th 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, 26th 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, 17th November 2016
37. *Imaging quantum objects: What free electrons can tell us about bound electronic states*

- Departmental Seminar**, Chemistry Department, Eastern Illinois University, 20th October 2014
36. *Low Energy Electron Molecule Interactions—Photoelectron Imaging of Resonance States* **Departmental Seminar** Chemistry Department Marquette University, 18th September 2014
 35. *Electron Molecule Interactions: Structure and Dynamics of Anionic Species* **Departmental Seminar** Millikin University, IL Chemistry Department 24th October 2013
 34. *Anion Photodetachment Imaging: Electron-Neutral Molecule Interactions from Anion Precursors* **Departmental Seminar** University of Nebraska, Lincoln (Physics Department), 26th 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 14th 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 24th 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 21st 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, 8th 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, 16th 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, 15th 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, 13th 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 65th 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, 28th 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 239th 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 238th 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, 9th February 2009
18. *Photoelectron Imaging: Photodetachment to Probe Photoinitiated Processes*
R. Mabbs, M. van Duzor, F. Mbaiwa, J. Wei
Contributed Oral Presentation 43rd ACS Midwest Regional Meeting, October 8 – 11, 2008, Kearney, NE
17. *Intracluster Electron Interactions*
R. Mabbs, M. van Duzor, F. Mbaiwa
Contributed Oral Presentation 236th 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, 235th 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, 1st February 2007
12. *Photoelectron Imaging: Modern Research Techniques in Quantum Chemistry Teaching*
R. Mabbs, A. Sanov
Contributed Oral Presentation, 232nd 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, 232nd 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.
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