

Daniel Stephen Slaughter

CONTACT INFORMATION	Chemical Sciences, Lawrence Berkeley National Laboratory Berkeley, California 94720 USA	Tel: +1 510 486 4847 Fax: +1 510 4865494 E-mail: DSSlaughter@lbl.gov http://sites.google.com/site/dsslaughter1980/
CITIZENSHIP	Australia	
RESEARCH INTERESTS	Electron and molecular dynamics; Transient states of molecules such as resonant anions and excited states; Chemical reaction dynamics; Atomic and molecular interactions with electrons and positrons; Multi-parameter particle detection; charged-particle optics design.	
EDUCATION	Flinders University, Adelaide, SA, Australia	
	PhD (2002-2007)	
	Thesis: "Superelastic Electron Scattering from Caesium"	
	Supervisors: P.J.O. Teubner, M.J. Brunger	
	- thesis available online through the Australian Digital Theses Program	
	http://catalogue.flinders.edu.au/local/adt/public/adt-SFU20071009.100421/	
	Flinders University, Adelaide, SA, Australia	
	BSc (Hons 1st class), Physics, 2001.	
	Thesis: "Caesium Ultranarrow Bandwidth Excited Atomic Line Optical Filter"	
	Supervisors: P.J.O. Teubner, V. Karaganov.	
ACADEMIC EXPERIENCE	Lawrence Berkeley National Laboratory, Chemical Sciences Division, Berkeley, CA, USA	
	<i>Project Scientist</i>	Feb 2013 - present
	Principal Investigator for dissociative electron attachment programs, including investigation of detailed dynamical description of the dynamics of transient anion resonances for smaller polyatomic molecules and key aspects of the dynamics in larger transient anions of biological significance.	
	<i>Postdoctoral Research Fellow</i>	Apr 2010 - Feb 2013
	Performed experimental investigations of the dynamics of dissociative electron attachment to polyatomic molecules. Developed scientific apparatus to enable momentum imaging of dissociative electron attachment to larger molecules of biological significance such as DNA and RNA bases. Collaboration with experimental and theory groups both within and outside of LBNL.	
	ARC Centre for Antimatter-Matter Studies, Australian National University, Canberra, Australia	

Postdoctoral Research Fellow

Jan 2008 - Apr 2010

Design and development of a new apparatus for multi-parameter charged particle detection of reaction products in positron-atom ionising collisions. Detailed measurements of low-energy positron interactions with atoms and molecules, including elastic and total interaction cross sections, positronium formation, direct ionisation cross sections and state-resolved electronic excitation cross sections.

Flinders University, Adelaide, Australia.

Associate Lecturer

2006

Teaching of undergraduate course *Physics 1*. My responsibilities were tutorial preparation and delivery, shared responsibilities for creating exams and other student assessment tasks.

Postgraduate Student

2001 - 2007

Undergraduate physics tutoring (classes and consulting) and laboratory teaching.

SCHOLARSHIPS
AND AWARDS

- Ferry Postgraduate Scholarship (2002)
- Elain Martin Travel Grant (2005)

RECENT INVITED
TALKS

- "Exploring Free Electron - Driven Chemistry Using Synchrotron Radiation", Workshop on Current and Future Directions for AMO and Chemical Physics Research, ALS User Meeting, Berkeley, CA, USA, October 8-9, 2013.
- "3-D Momentum Imaging of Dissociative Electron Attachment Dynamics in Polyatomic Molecules", XVIII International Symposium on Electron-Molecule Collisions and Swarms (POSMOL), Kanazawa, Japan, July 19-20, 2013.
- "Low-Energy Free Electron Driven Chemistry in Polyatomic Molecules", Colloquium, Faculty of Science and Engineering, Sophia University, Tokyo.

PEER-REVIEWED
PUBLICATIONS

2013

20. A. Moradmand, D. S. Slaughter, D. J. Haxton, T. N. Rescigno, C. W. McCurdy, Th. Weber, S. Matsika, A. L. Landers, A. Belkacem, and M. Fogle
Dissociative electron attachment to carbon dioxide via the $^2\Pi_u$ shape resonance
Phys. Rev. A **88** 032703
19. A. Moradmand, D. S. Slaughter, A. L. Landers, and M. Fogle
Dissociative-electron-attachment dynamics near the 8-eV Feshbach resonance of CO_2
Phys. Rev. A **88** 022711
18. D. S. Slaughter, D. J. Haxton, H. Adaniya, T. Weber, T. N. Rescigno, C. W. McCurdy, and A. Belkacem
Ion-momentum imaging of resonant dissociative-electron-attachment dynamics in methanol

2012

17. D S Slaughter, H Adaniya, T N Rescigno, D J Haxton, C W McCurdy, A Belkacem, Larson and A E Orel
Resonant enhanced electron impact dissociation of molecules
J. Phys.: Conf. Ser. **388** 012016
16. H Adaniya, D S Slaughter, T Osipov, T Weber, and A Belkacem
A momentum imaging microscope for dissociative electron attachment
Rev. Sci. Instrum. **83** 023106

2011

15. J R Machacek, C Makochekanwa, A C L Jones, P Caradonna, D S Slaughter, R P McEachran, J P Sullivan, S J Buckman, S Bellm, B Lohmann, D V Fursa, I Bray, D W Mueller and A D Stauffer
Low-energy positron interactions with xenon
New J. Phys. **13** 125004.
14. D S Slaughter, H Adaniya, T N Rescigno, D J Haxton, A E Orel, C W McCurdy and A Belkacem
Dissociative electron attachment to carbon dioxide via the 8.2 eV Feshbach resonance
J. Phys. B: At. Mol. Opt. Phys. **44** 205203.
13. D. J. Haxton, H. Adaniya, D. S. Slaughter, B. Rudek, T. Osipov, T. Weber, T. N. Rescigno, C. W. McCurdy, and A. Belkacem
Observation of the dynamics leading to a conical intersection in dissociative electron attachment to water
Phys. Rev. A **84** 030701(R)
12. C. Makochekanwa, J. R. Machacek, A. C. L. Jones, P. Caradonna, D. S. Slaughter, R. P. McEachran, J. P. Sullivan, and S. J. Buckman, S. Bellm and B. Lohmann, D. V. Fursa and I. Bray, D.W. Mueller, A. D. Stauffer, M. Hoshino
Low-energy positron interactions with krypton
Phys. Rev. A **83** 032721
11. A. C. L. Jones, C. Makochekanwa, P. Caradonna, D. S. Slaughter, J. R. Machacek, R. P. McEachran, J. P. Sullivan, S. J. Buckman, A. D. Stauffer, I. Bray and D. V. Fursa
Positron scattering from neon and argon
Phys. Rev. A **83** 032701
10. J P Sullivan, C Makochekanwa, A Jones, P Caradonna, D S Slaughter, J Machacek, R P McEachran, D W Mueller, and S J Buckman
Forward angle scattering effects in the measurement of total cross sections for

positron scattering

J. Phys. B: At. Mol. Opt. Phys. **44** 035201

9. T Pflger, M Holzwarth, A Senftleben, X Ren, A Dorn, J Ullrich, L R Hargreaves, B Lohmann, D S Slaughter, J P Sullivan, J C Lower, and S J Buckman
Kinematically complete experiments for positron-impact ionization of helium atoms at the NEPOMUC facility
J. Phys.: Conf. Ser. **262** 012047

2010

8. A. C. L. Jones, P. Caradonna, C. Makochekanwa, D. S. Slaughter, R. P. McEachran, J. R. Machacek, J. P. Sullivan, and S. J. Buckman (2010). Observation of Threshold Effects in Positron Scattering from the Noble Gases, *Phys. Rev. Lett.* **105** 073201.
<http://dx.doi.org/10.1103/PhysRevLett.105.073201>

2009

7. Casten Makochekanwa, Ana Bankovic, Wade Tattersall, Adric Jones, Peter Caradonna, Daniel Slaughter, Kate Nixon, Michael J Brunger, Zoran Lj Petrovic, James P Sullivan and Stephen J Buckman (2009). Total and positronium formation cross sections for positron scattering from H₂O and HCOOH, *New J. Phys.* **11** 103036.
<http://dx.doi.org/10.1088/1367-2630/11/10/103036>
6. Peter Caradonna, James P. Sullivan, Adric Jones, Casten Makochekanwa, Daniel Slaughter, Dennis W. Mueller and Stephen J. Buckman (2009). Excitation of the n=2 States of Helium by Positron Impact, *Phys. Rev. A* **80** 060701.
<http://link.aps.org/doi/10.1103/PhysRevA.80.060701>
5. P Caradonna, A Jones, C Makochekanwa, D S Slaughter, J P Sullivan, S J Buckman, I Bray and D V Fursa (2009). High Resolution Positron Scattering from Helium: Grand Total and Positronium Formation Cross Sections, *Phys. Rev. A* **80** 032710.
<http://link.aps.org/doi/10.1103/PhysRevA.80.032710>
4. A Jones, P Caradonna C Makochekanwa, D Slaughter, D Mueller, J P Sullivan and S J Buckman (2009). High Resolution Positron Interactions, *J. Phys.: Conf. Proc.* **194**012033.
<http://dx.doi.org/10.1088/1742-6596/194/1/012033>
3. J. P. Sullivan, S. J. Buckman, A. Jones, P. Caradonna, C. Makochekanwa, D. Slaughter, Z. Lj Petrovic, A. Bankovic, S. Dujko, J. P. Marler, R. D. White (2009). Low energy positron interactions - trapping, transport and scattering, *J. Phys.: Conf. Ser.* **162** 012002.
<http://dx.doi.org/10.1088/1742-6596/162/1/012002>

2008

2. S.J. Buckman, T. Madder, J. Francis-Staite, L. Hargreaves, M.J. Brunger, G. Garcia, J.C. Lower, S. Mondal, J.P. Sullivan, A. Jones, P. Caradonna, D. Slaughter, C. Mackochekanwa and R.P. McEachran (2008). Low energy lepton scattering: recent results for electron and positron interactions, *J. Phys.: Conf. Ser.* **133** 12001.
<http://dx.doi.org/10.1088/1742-6596/133/1/012001>

2007

1. D.S. Slaughter, V. Karaganov, M.J. Brunger, P.J.O. Teubner, I. Bray and K. Bartschat (2007). Superelastic electron scattering from laser-excited cesium atoms, *Phys. Rev. A* **75** (6) 2717.
<http://link.aps.org/doi/10.1103/PhysRevA.75.062717>