

**CURRICULUM VITAE****James E. Johns****IDENTIFYING INFORMATION****Academic Rank**

Assistant Professor in Chemistry  
 Graduate Faculty Appointment in Chemical Physics

**Education**

<b>Degree</b>	<b>Institution</b>	<b>Date Degree Granted</b>
B.S.	University of Virginia Chemistry	2004
Ph.D.	University of California, Berkeley Chemistry [Advised by Charles B. Harris]	2010

**Positions/Employment**

University of Minnesota, Twin Cities (2013 – present)  
 Assistant Professor  
 Previous rank  
 July 2013 - present  
 dates

Northwestern University  
 Postdoctoral Fellow  
 2010 - 2013

**Current Membership in Professional Organizations**

American Chemical Society

**HONORS AND AWARDS FOR RESEARCH/CREATIVE WORK, TEACHING, PUBLIC ENGAGEMENT, AND SERVICE***Previous to the University of Minnesota*

Post-doctoral Fellow, International Institute of Nanotechnology at Northwestern University, 2011 – 2013.

**RESEARCH, SCHOLARSHIP, AND CREATIVE WORK****Publications**

***Previous to the University of Minnesota******Refereed Journal Articles***

1. Eric C. Mattson, **J. E. Johns**, K Pande, RA Bosch, S Cui, M Gajdardziska-Josifovska, M. Weinert, J. Chen, M. C. Hersam, C. J. Hirschmugl, "Vibrational Excitations and Low Energy Electronic Structure of Epoxide-decorated Graphene." *J. Phys. Chem. Lett.*, 5, 2014, pp. 212 – 219. <http://dx.doi.org/10.1021/jz4025386>
2. **James E. Johns**, J. M. P. Alaboson, S. Patwardhan, C. R. Ryder, G. C. Schatz, M. C. Hersam, "Metal oxide nanoparticle growth on graphene via activation with atomic oxygen." *JACS*, 3, 2013, p.18121 – 18125. <http://dx.doi.org/10.1021/ja408248z>
3. Jung Woo T. Seo, N. L. Yoder, T. A. Shastry, J. J. Humes, **J. E. Johns**, A. A. Green, M. C. Hersam, "Diameter Refinement of Semiconducting Arc Discharge Single-Walled Carbon Nanotubes via Density Gradient Ultracentrifugation." *J. Phys. Chem. Lett.*, 4, 2014, pp. 2805 – 2810. <http://dx.doi.org/10.1021/jz4013596>
4. Deep Jariwala, V. K. Sangwan, D. J. Late, **J. E. Johns**, V. P. Dravid, T. J. Marks, L. J. Lauhon, M. C. Hersam, "Band-like transport in high mobility unencapsulated single-layer MoS<sub>2</sub> transistors." *Appl. Phys. Lett.*, 102, 2013, pp. 173107 – 173107-4. <http://dx.doi.org/10.1063/1.4803920>
5. Justice. P. Alaboson, C. H. Sham, S. Kewalramani, J. D. Emery, **J. E. Johns**, A. Deshpande, T. Y. Chien, M. J. Bedzyk, J. W. Elam, M. J. Pellin, and M. C. Hersam. "Templating atomic layer deposition on graphene with one-dimensional self-assembled monolayers." *Nano Lett.*, 13, 2013, pp 5763–5770. <http://dx.doi.org/10.1021/nl4000932>
6. Vinod K. Sangwan, D. Jariwala, S. A. Filippone, H. J. Karmel, **J. E. Johns**, J. M. P. Alaboson, T. J. Marks, L. J. Lauhon, and M. C. Hersam, "Quantitatively enhanced reliability and uniformity of high-k dielectrics on graphene enabled by self-assembled seeding layers." *Nano Lett.* 13, (3), 2013, pp.1162 – 1167. <http://dx.doi.org/10.1021/nl3045553>
7. Eric A. Muller, M. L. Strader, **J. E. Johns**, A. Yang, B. W. Caplins, A. J. Shearer, D. E. Suich, and C. B. Harris, "Femtosecond Electron Solvation at the Ionic Liquid/Metal Electrode Interface" *JACS*, 135, 2013, pp.10646 – 10653. <http://dx.doi.org/10.1021/ja3108593>
8. **James E. Johns**, M. C. Hersam, "Atomic Covalent Functionalization of Graphene." *Acc Chem Res*, 46, 2013, p.77 – 86. <http://dx.doi.org/10.1021/ar300143e>
9. **J. E. Johns**, Hunter J. Karmel, Justice M. P. Alaboson, and Mark C. Hersam, "Probing the structure and chemistry of perylenetetracarboxylic dianhydride on graphene before and after atomic layer deposition." *J. Phys. Chem. Lett.*, 3, 2012, pp.1974-1979. <http://dx.doi.org/10.1021/jz300802k>
10. Md. Zakir Hossain, **J. E. Johns**, K. H. Bevan, H. J. Karmel, Y. T. Liang, S. Yoshimoto, K. Mukai, T. Koitaya, J. Yoshinobu, M. Kawai, A. M. Lear, L. L. Kesmodel, S. L. Tait, M. C. Hersam, "Chemically homogeneous and thermally reversible oxidation of epitaxial grapheme." *Nat. Chem.*, 4, 2012, p. 305 – 309. <http://dx.doi.org/10.1038/nchem.1269>
11. Ian P. Murray, S. J. Lou, L. J. Cote, S. Loser, C. J. Kadleck, T. Xu, J. M. Szarko, B. S. Rolczynski, **J. E. Johns**, J. Huang, L. Yu, L. X. Chen, T. J. Marks, M. C. Hersam, "Graphene oxide interlayers for robust, high-efficiency organic photovoltaics." *J. Phys. Chem. Lett.*, 2, 2011, pp. 3006 – 3012. <http://dx.doi.org/10.1021/jz201493d>

12. Eric. A. Muller, **J. E. Johns**, B. Caplins, C. B. Harris, “Quantum confinement and anisotropy in thin-film molecular semiconductors.” *Phys. Rev. B*, 83, 2011 p.165422.  
<http://dx.doi.org/10.1103/PhysRevB.83.165422>
13. **James E. Johns**, E. A. Muller, J. M. J. Frechet, and C. B. Harris, “The Origin of Charge Localization Observed in Organic Photovoltaic Materials,” *JACS*, 132, 2010, pp. 15720 – 15725.  
<http://dx.doi.org/10.1021/ja1066866>
14. Matthew L Strader, S. Garrett-Roe, P. Szymanski, S. T. Shipman, **J. E. Johns**, A. Yang, E. Muller, C. B. Harris, “The ultrafast dynamics of image potential state electrons at the dimethylsulfoxide/Ag (111) interface”, *J. Phys. Chem. C*, 112, 2008, pp.6880 – 6886. <http://dx.doi.org/10.1021/jp7116664>
15. Brian C. Dian, G. G. Brown, K. O. Douglass, F. S. Rees, **J. E. Johns**, P. Nair, R. D. Suenram, and B. H. Pate, “Conformational isomerization kinetics of pent-1-en-4-yne with  $3,330\text{ cm}^{-1}$  of internal energy measured by dynamic rotational spectroscopy.” *PNAS*, 105, 2008, pp.12696 – 12700.  
<http://dx.doi.org/10.1073/pnas.0800520105>
16. Aram Yang, S. T. Shipman, S. Garrett-Roe, **J. E. Johns**, M. Strader, P. Szymanski, E. A. Muller, and C. B. Harris, “Two-photon photoemission of ultrathin film PTCDA morphologies on Ag (111).” *J. Phys. Chem. C*, 112, 2008, pp. 2506 – 2513. <http://dx.doi.org/10.1021/jp076632q>
17. Kevin O. Douglass, **J. E. Johns**, P. M. Nair, G. G. Brown, F. S. Rees, B. H. Pate, “Applications of Fourier transform microwave (FTMW) detected infrared–microwave double-resonance spectroscopy to problems in vibrational dynamics.” *J. Mol. Spec.*, 239, 2006, pp. 29-40.  
<http://dx.doi.org/10.1016/j.jms.2006.05.015>
18. Kevin O. Douglass, B. C. Dian, G. G. Brown, **J. E. Johns**, P. M. Nair, B. H. Pate, “Motional narrowing of the rotational spectrum of trifluoropropyne at  $6550\text{ cm}^{-1}$  by intramolecular vibrational energy redistribution.” *J. Chem. Phys.*, 121, 2004, p. 6845. <http://dx.doi.org/10.1063/1.1780164>

#### *Non-refereed Journal Articles, Essays, or Book Chapters*

##### **Previous to the University of Minnesota**

1. **James E. Johns**, E. A. Muller, S. Garrett-Roe, M. Strader, C. B. Harris, “Relaxation Dynamics in Image Potential States at Solid Interfaces.” in *Dynamics at Solid State Surfaces and Interfaces*, ed. U. Bovensiepen, H. Petek, M. Wolf, Wiley-VCH, 2010

#### **Presentations, Posters, and Exhibits**

##### **Previous to the University of Minnesota**

###### **Presentations:**

1. **James E. Johns** “Probing and Chemically Manipulating 2D Carbon Based Electronic Materials in Time and Space.” Wake Forest University, Dec. 2012
2. **James E. Johns** “Probing and Chemically Manipulating 2D Carbon Based Electronic Materials in Time and Space.” Ohio State University, Dec. 2012
3. **James E. Johns** “Probing and Chemically Manipulating 2D Carbon Based Electronic Materials in Time and Space.” University of Minnesota, Dec. 2012
4. **James E. Johns** “Probing and Chemically Manipulating 2D Carbon Based Electronic Materials in Time and Space.” University of Washington, Jan. 2013

5. **James E. Johns** “Probing and Chemically Manipulating 2D Carbon Based Electronic Materials in Time and Space.” Harvard University, Jan. 2013
6. **James E. Johns** “Probing and Chemically Manipulating 2D Carbon Based Electronic Materials in Time and Space.” Colorado State University, Jan. 2013
7. **James E. Johns** “Probing and Chemically Manipulating 2D Carbon Based Electronic Materials in Time and Space.” Princeton, Jan. 2013
8. **James E. Johns** “Probing and Chemically Manipulating 2D Carbon Based Electronic Materials in Time and Space.” University of Illinois, Urbana-Champaign, Jan. 2013
9. **James E. Johns** “Probing and Chemically Manipulating 2D Carbon Based Electronic Materials in Time and Space.” Yale University, Feb. 2013
10. **James E. Johns** “Probing and Chemically Manipulating 2D Carbon Based Electronic Materials in Time and Space.” University of Pittsburgh, Feb. 2013
11. **James E. Johns**, Md. Z. Hossain, M. C. Hersam “Enhancing and Controlling the Chemical Reactivity of Epitaxial Graphene via Growth Induced Strain” American Vacuum Society, Nov 2011
12. **James E. Johns**, E. A. Muller, C.B. Harris “Studying charge transport properties of organic photovoltaics at metal surfaces using two photon photoemission” American Chemical Society, March 2009.
13. **James E. Johns**, A. Yang, S. Shipman, M. Strader, E. Muller, C.B. Harris “Using Two Photon Photo-emission to Study Plastic Photovoltaics.” Dept. of Energy Review of Material Science Division, Lawrence Berkeley National Laboratory. Jan. 2008
14. Frances Rees, **J. E. Johns**, P. Nair, K. Douglass, B. H. Pate. “High- Resolution Pulsed Infrared Laser Spectroscopy using Optothermal and Fourier Transform Microwave Detection.” Presented by J. Johns. OSU International Symposium on Molecular Spectroscopy (2003).

### Websites

Designed and developed personal faculty website ([www.chem.umn.edu/groups/johns](http://www.chem.umn.edu/groups/johns))

## TEACHING AND CURRICULUM DEVELOPMENT

### University of Minnesota

Courses, seminars, and instructional units taught:

Chem4511W – Advanced Physical Chemistry Lab, Fall 2013.

Faculty Development Activities regarding teaching

Cottrell Scholars New Faculty Workshop July 2012

## ADVISING AND MENTORING

### Undergraduate Student Activities

Undergraduate research projects (UROPS, directed research, lab participation, etc.):

Guillermo Turcios, undergraduate from Gustavus, summer research & lab participation, Summer 2013

Chase Taylor, UMN undergraduate in chemical engineering, lab participation, Fall, 2013

### **Graduate Student Activities**

Doctoral Students Advised (Academic advising for all or part of graduate student's program)

Zachary Degregorio

Aaron Schulzetenberg

### **Other Mentoring Activities**

Mentorship Program for Aspiring Chemistry Teachers mentor to Becca Mackenzie, Fall 2013

Chemistry Graduate Student Workshop panelist on "How to present your research at on-site job interviews", Oct, 9, 2013

### **SERVICE AND PUBLIC OUTREACH**

#### **Service To The University/College/Department**

*University of Minnesota [2013 - present]*

Department/Unit Service

[Chemistry seminar committee: chair; Graduate student symposium committee;]