

Danielle S. Bassett, PhD

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ACADEMIC EMPLOYMENT:

The University of California Santa Barbara Sage Junior Research Fellow Departments of Physics & Psychological and Brain Sciences	Santa Barbara, CA Fall 11 – Fall present
The University of California Santa Barbara Postdoctoral Research Associate Department of Physics Institute for Collaborative Biotechnologies Supervisors: Prof. Jean Carlson (Physics) and Prof. Scott Grafton (Psychology)	Santa Barbara, CA Fall 09 – Fall 11

EDUCATION:

The University of Cambridge (UoC), King's College PhD in Physics (awarded July 2009) Advisors: Dr. Thomas Duke (UoC), Dr. Ed Bullmore (UoC), Dr. Andreas Meyer-Lindenberg (NIMH) Funded by the NIH-University of Cambridge Health Science Scholarship	Cambridge, UK Fall 05 – Fall 09
The University of Cambridge (UoC), Churchill College Certificate in Postgraduate Studies in Physics (CPGS) Funded by Winston Churchill Scholarship and the NIH-University of Cambridge Health Science Scholarship	Cambridge, UK Fall 04 – Fall 05
The Pennsylvania State University - Schreyer Honors College Graduated With Distinction Honors B.S. in Physics, Minor in Mathematics Honors in Physical Chemistry of Synthetic Cells	State College, PA Spring 2001- May 2004
The Reading Hospital School of Nursing Completed 1.5/3 years towards R.N. degree Estimated GPA >3.9/4.0	Reading, PA Fall 1999 - Fall 2000

EXPERIENCE:

INDUSTRY PLACEMENT:

GlaxoSmithKline, Cambridge. Study #TMT110737; PI Odile Dewit.	2008-2009
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RESEARCH SUPERVISOR:

Florian Klimm, Undergraduate Research Experience Work in progress	2012-present
Felix Siebenhuener, Research Assistant Work in progress	2011-2012
Undergraduate Thesis: Mary-Ellen Lynall, University of Cambridge Title: "Functional Connectivity and Brain Networks in Schizophrenia" Published in J Neurosci	2009
Master's Thesis: Lorena Deuker, University Konstanz, Dept of Psychology Title: "Reproducibility of Graph Metrics in MEG" Published in Neuroimage	2008-2009

TEACHING:

Supervisor of Physics 1A for the University of Cambridge Clare, Kings and Churchill Colleges	2005-2009
Laboratory Teaching Assistant Pennsylvania State University	2002-2004
Tutor for undergraduate math and physics Pennsylvania State University	2000-2002

UNDERGRADUATE RESEARCH:

<i>Biomaterials and Bionanotechnology Summer Institute (NSF, NIH Awards)</i> Research Title: Metal Ion Partitioning in Giant Vesicles	State College, PA Summer 2003
<i>Bucknell University (NSF Research Experience for Undergraduates Award)</i> Research Title: Physical Modeling of Nerve Impulses	Lewisburg, PA Summer 2002

CLINICAL EXPERIENCE:

<i>Morning Star Orthopedics</i> Medical Secretary and Patient Care	Elverson, PA Summer 2000
<i>The Reading Hospital and Medical Center</i> Unit Support Worker in Patient Care	Reading, PA Feb-June 2000

AWARDS AND ACHIEVEMENTS:

ACADEMIC ACHIEVMENT AWARDS:

Alumni Achievement Award, Schreyer Honors College, PSU	Jan, 2012
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POSTDOCTORAL AWARDS:

Travel Grant Award SIAM UQ2012	April, 2012
Daryl & Marguerite Errett Discovery Award in Biomedical Research \$49,000 towards research costs	May, 2011
Sage Junior Research Fellowship 2-year stipend and research costs	March, 2011
Travel Grant Award OHBM 2010 conference	June, 2010
Travel Grant Award SAMSI Workshop on Complex Networks	Sept, 2010
Travel Grant Award New Horizons 2010 conference	Dec, 2010

GRADUATE FELLOWSHIPS:

NIH-University of Cambridge Health Science Scholarship Fully funded collaborative PhD between the National Institutes of Health, Bethesda, MD, USA and the University of Cambridge, UK	2004-2009
Winston Churchill Scholarship, University of Cambridge, UK	2004-2005
Fulbright Scholarship Awarded for study at the Brain Dynamics Centre, Sydney, Australia (Declined)	2004

UNDERGRADUATE SCHOLARSHIPS AND AWARDS:

The Paul Axt Prize	2004
Given to one student each year who displays the passionate commitment to inquiry that promotes high scholarly achievement and the intellectual curiosity and daring that lead to the development and pursuit of wide-ranging interests.	
Most Achieving Undergraduate Woman of the Year	2004
Society for Distinguished Alumni Scholarship	2004
Academic Achievement Awards: Eberly College of Science	2002–2004
Schreyer Honors Scholar	2002-2004
John and Elizabeth Holmes Teas Scholarship, Department of Physics	2002-2003
Paul Morrow Scholarship, Department of Engineering	2001
Academic Achievement Award in Physics	2002

AFFILIATIONS:

APS (American Physical Society)
 OHBM (Organization for Human Brain Mapping)
 SfN (Society for Neuroscience)

ORGANIZATIONAL AND VOLUNTEER SERVICES:

Winston Churchill Scholarship Screening Committee	2011-2012
Sage Center for the Mind, UCSB, website assistant	2011-present
KITP mini-symposium, organizational assistant	2010-2011
Adopt-a-Physicist Volunteer	2009-present
International Hospitality Volunteer, Pennsylvania State University	2002-2004
Habitat for Humanity	2000

SOFTWARE PACKAGES:

Contributor to BCT (Brain Connectivity Toolbox), Indiana University (Olaf Sporns)

INVITED LECTURES & PRESENTATIONS:

Future:

<i>Institute for the Applications of Mathematics & Integrated Science Workshop</i> Network Architecture and Predictive Dynamics of Brain Systems	Riverside, CA June 20, 2012
<i>OHBM Workshop on Brain Graphs</i> Dynamic Network Organization in the Human Brain	Beijing, China June 12, 2012
<i>Center for Imaging of Neurodegenerative Diseases: Symposium</i> Network Models of the Human Brain in Health and Disease	San Francisco, CA June 2, 2012
<i>UCSB Physics Colloquium</i> Network Architecture and Predictive Dynamics of Brain Systems	Santa Barbara, CA May 29, 2012
Past:	
<i>Penn State Physics Department Special Seminar</i> Network Architecture and Predictive Dynamics of Brain Systems	University Park, PA March 29, 2012
<i>UCSB Mechanical Engineering Seminar</i>	Santa Barbara, CA

Network Architecture and Predictive Dynamics of Brain Systems	March 14, 2012
<i>Cornell University: Biomedical Imaging Research Seminar Series</i> Network Models of the Human Brain	Manhattan, NY March 7, 2012
<i>Yale: 5th Annual Symposium, Swartz Program in Theoretical Neurobiology</i> Complex Dynamics of Human Brain Networks	New Haven, CT Oct 28, 2011
<i>Virginia Tech Physics Colloquium</i> Networks of the Brain	Blacksburg, VA Sept 12, 2011
<i>KITPMini-Program: Network Architecture of Brain Structures and Functions</i> Network Analysis of Human Imaging Data	Santa Barbara, CA August 3, 2011
<i>The UCLA Advanced Neuroimaging Summer Program 2011</i> Complex Network Analysis in Neuroimaging	Los Angeles, CA July 2011
<i>University of Glasgow</i> Network Organization of Human Brain Structure and Function	Glasgow, UK June 10, 2011
<i>UC Santa Barbara Course Lecture, "Special Topics" psy594LN</i> Understanding Complexity in the Human Brain	Santa Barbara, CA April 18, 2011
<i>University of Minnesota CNR Colloquium</i> History and Applications of Physics to the Study of the Human Brain	Minneapolis, MN March 22, 2011
<i>University of Minnesota CMRR Colloquium</i> Complex Network Analysis in Neuroimaging	Minneapolis, MN March 21, 2011
<i>International Imaging Genetics Conference</i> Complex Network Analysis in Neuroimaging	UC Irvine, CA January 17, 2011
<i>Virginia Tech Physics Colloquium</i> History and Applications of Physics to the Study of the Human Brain	Blacksburg, VA January 14, 2011
<i>Virginia Tech Carilion Institute Colloquium</i> Efficiency and Adaptivity of Human Brain Networks	Roanoke, VA January 13, 2011
<i>SAMSI Dynamics of Networks Workshop</i> Dynamic Community Structure in Adaptive Systems	Raleigh, NC January 10, 2011
<i>Society for Neuroscience Short Course</i> Complex Network Analysis in Clinical Neuroscience	San Diego, CA Nov 12, 2010
<i>INFORMS</i> Dynamic Community Structure in Adaptive Systems Influence of Information Networks on Collective Evacuation Dynamics	Austin, TX Nov 8, 2010 Nov 10, 2010
<i>Neuroimaging Technologies for Optimizing Performance</i> Conserved and Variable Architecture of Human White Matter Connectivity	Alexandria, VA Sept 24, 2010
<i>The UCLA Advanced Neuroimaging Summer Program 2010</i> Complex Network Analysis in Neuroimaging	Los Angeles, CA July 20, 2010
<i>Brain Connectivity Workshop 2010</i> Efficient Physical Embedding of Information Systems	Berlin, Germany June 2, 2010

PEER REVIEW PROCESS:

Reviewer for: Behavioral Brain Research, Biological Psychiatry, Brain, Cerebral Cortex, Frontiers in Human Neuroscience, Frontiers in Systems Neuroscience, Human Brain Mapping, Journal of Neuroscience, Journal of Neuroscience Methods, Neuroimage, Neuroinformatics, Neuron, PLoS Computational Biology, PLoS One, Proceedings of the National Academy of Sciences (PNAS), Schizophrenia Bulletin, SIAM Review

Guest Editor: PLoS Computational Biology

Editor: Frontiers in Fractal Physiology

PUBLICATIONS (h-Index of 15):

Submitted (2)

Danielle S. Bassett, Eli T. Owens, Karen E. Daniels, Mason A. Porter. The Influence of Topology on Sound Propagation in Granular Force Networks (Submitted).

Ann M. Hermundstad, Kevin Brown, **Danielle S. Bassett**, Jean M. Carlson. Structural Drivers of Function in Information Processing Networks, to appear in the Proceedings of the Forty-Fifth Asilomar Conference on Signals, Systems, and Computers, (Submitted).

Post-publication: (29)

Nicholas F. Wymbs, **Danielle S. Bassett**, Peter J. Mucha, Mason A. Porter and Scott T. Grafton. Motor Chunking is Correlated with Activation of the Human Sensorimotor Putamen. To appear in Neuron.

Cecilia Conaco, **Danielle S. Bassett**, Hongjun Zhou, Mary Luz Arcila, Sandie M. Degnan, Bernard M. Degnan, Kenneth S. Kosik. Functionalization of a Proto-Synaptic Gene Expression Network. To appear in PNAS.

Danielle S. Bassett, Brent G. Nelson, Bryon A. Mueller, Jazmin Camchong, Kelvin O. Lim. Abnormal Resting State Complexity in Schizophrenia. Neuroimage, 2011, Oct 8, Epub Ahead of Print.

Danielle S. Bassett, Felix Siebenhühner. Spinning a Mental Web. Front Hum Neurosci, 2011, 5:141.

Shennan Aibel Weiss, **Danielle S. Bassett**, Daniel Rubinstein, Tom Holroyd, Jose Apud, Dwight Dickinson, Richard Coppola. Functional brain network characterization and adaptivity during task practice in healthy volunteers and people with schizophrenia. Front. Hum. Neurosci, 2011, 5:81.

Ann M. Hermundstad, Kevin Brown, **Danielle S. Bassett**, Jean M. Carlson. Learning, Memory

and the Role of Neural Network Architecture. *PloS Comp Biol*, 2011, 7(6):e1002063.

Mika Rubinov, **Danielle S. Bassett**. Emerging evidence of connectomic abnormalities in schizophrenia. *J Neurosci*, 2011, 31(17):6263-6265.

Danielle S. Bassett, Nicholas Wymbs, Mason Alexander Porter, Peter Mucha, Jean M. Carlson, Scott T. Grafton. Dynamic reconfiguration of human brain networks during learning. *PNAS*, 2011, 108(18):7641-6.

Danielle S. Bassett, Michael S. Gazzaniga. Understanding complexity in the human brain. *Trends in Cognitive Sciences*, 2011, 15(5):200-9.

Alex Fornito, Andrew Zalesky, **Danielle S. Bassett**, David Meunier, Ian Ellison-Wright, Murat Yucel, Stephen Wood, Karen Shaw, Jennifer O'Connor, Deborah Nertney, Bryan Mowry, Christos Pantelis, Edward T. Bullmore. Genetic influences on cost-efficient organization of human cortical functional networks. *J Neurosci*, 2011, 31(9):3261-3270.

Danielle S. Bassett. Clinical applications of complex network analysis. Society for Neuroscience Short Course,
http://www.sfn.org/siteobjects/published/0000BDF20016F63800FD712C30FA42DD/205A577D83CA869B26F16CADE6373874/file/SC3_2010_Bassett.pdf.

Jean M. Vettel, **Danielle S. Bassett**, Reuben Kraft, Scott T. Grafton. Physics-based models of brain structure connectivity informed by diffusion weighted imaging. Army Science Conference, <http://www.armyscienceconference.com/manuscripts/R/RP-006.pdf>.

Danielle S. Bassett, Edward T. Bullmore. Brain anatomy and small-world networks. In *Network Approaches to Diseases of the Brain: Clinical Applications in Neurology and Psychiatry*. Bentham, 2011.

Edward T. Bullmore, **Danielle S. Bassett**. Brain graphs: graphical models of the human brain connectome. *AR Clinical Psychology*, 2011, 7:113-40.

Danielle S. Bassett, Jesse A. Brown, Vibhas Deshpande, Jean M. Carlson, Scott A. Grafton. Conserved and variable architecture of human white matter connectivity. *Neuroimage*, 2011, 54(2):1262-1279.

Mary-Ellen Lynall, **Danielle S. Bassett**, Peter J. McKenna, Manfred Kitzbichler, Ulrich Muller, and Edward T. Bullmore. Functional connectivity and brain networks in schizophrenia. *J Neurosci*, 2010, 30(28):9477-9487.

Danielle S. Bassett, Daniel L. Greenfield, Andreas Meyer-Lindenberg, Daniel R. Weinberger, Simon W. Moore, Edward T. Bullmore. Efficient physical embedding of topologically complex information processing networks in brains and computer circuits. *PloS Comp Biol*, 2010, 6(4):e1000748.

Danielle S. Bassett, Edward T. Bullmore, Andreas Meyer-Lindenberg, Jose A. Apud, Daniel R. Weinberger, Richard Coppola. Cognitive fitness of cost-efficient brain functional networks. *Proc Natl Acad Sci U S A*, 2009, 106(28):11747-52

Danielle S. Bassett, Edward T. Bullmore. Human brain networks in health and disease. *Curr Opin Neurol*, 2009, 22(4):340-7.

Lorena Deuker, Edward T. Bullmore, Marie Smith, Soren Christensen, Pradeep J. Nathan, Brigitte Rockstroh, **Danielle S. Bassett**. Reproducibility of graph metrics of human brain functional networks. *Neuroimage*, 2009, 47(4):1460-8.

Edward Bullmore, Anna Barnes, **Danielle S. Bassett**, Alex Fornito, Manfred Kitzbichler, David Meunier, John Suckling. Generic aspects of complexity in brain imaging data and other biological systems. *Neuroimage*, 2009, 47(3):1125-34.

Danielle S. Bassett, Edward Bullmore, Beth A. Verchinski, Venkata S. Mattay, Daniel R. Weinberger, Andreas Meyer-Lindenberg. Hierarchical Organization of Human Cortical Networks in Health and Schizophrenia. *J Neurosci*, 2008, 28(37):9239-48.

Sophie Achard, **Danielle S. Bassett**, Andreas Meyer-Lindenberg, Ed Bullmore. Fractal Connectivity of Long Memory Networks. *Physical Review E*, 2008, 77:036104.

Jason L. Stein, Lisa M. Wiedholz, **Danielle S. Bassett**, Daniel R. Weinberger, Caroline Zink, Venkata S. Mattay, Andreas Meyer-Lindenberg. A Validated Network of Effective Amygdala Connectivity. *NeuroImage*, 2007, 36(3):736-745.

Caroline F. Zink, Yunxia Tong, Qiang Chen, **Danielle S. Bassett**, Andreas Meyer-Lindenberg. Know Your Place: Neural Processing of Stable and Unstable Social Hierarchy in Humans. *Neuron*, 2008, 58:273-283.

Danielle S. Bassett, Andreas Meyer-Lindenberg, Sophie Achard, Thomas Duke, and Edward Bullmore. Adaptive Reconfiguration of Fractal Small-World Human Brain Functional Networks. *Proc Natl Acad Sci U S A*, 2006, 103(51):19518-19523.

Danielle S. Bassett and Edward T. Bullmore. Small-World Brain Networks. *The Neuroscientist*, 2006, 12:512-523.

Andreas Meyer-Lindenberg and **Danielle S. Bassett**. Nonlinear and Cooperative Dynamics in the Human Brain: Evidence From Multimodal Neuroimaging. In 'Coordination: Neural, Behavioral and Social Dynamics', Complexity Program Series: 'Understanding Complex Systems'. Springer, 2006.

Samantha J Richerson, PhD, Mark Ingram, **Danielle Perry**, Mark Stecker MD PHD. Classification of the Extracellular Fields Produced by Activated Neural Structures. *BioMedical Engineering OnLine*, 2005, 4:53.

CONFERENCES:

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| <i>Cognitive Neuroscience Meeting</i>
Poster: "Dynamic reconfiguration of human brain networks
During learning" | Chicago, IL
April 1, 2012 |
| <i>American Physical Society March Meeting</i>
Talk on "Influence of Topology of Signal Propagation in
Granular Force Networks" | Boston, MA
Feb 28, 2012 |
| <i>International Congress on Schizophrenia Research</i>
Invited Talk: "Multiscale statistical analysis of resting state
BOLD time series in schizophrenia"
<i>Presented by: Kelvin O. Lim</i> | Colorado Springs, CO
April 4, 2011 |
| <i>Society for Neuroscience</i>
Poster: "Dynamic network reconfiguration of human brain
networks during learning"
<i>Presented by: Nick Wymbs</i> | San Diego, CA
Nov 15, 2010 |

- SAMSI Workshop on Complex Networks* *Research Triangle Park, NC*
Presented Poster: "Time-dependent Network Architecture
of Human Brain Function" August 31, 2010
- Human Brain Mapping* *Barcelona, Spain*
Presented Poster: "Conserved and variable architecture" June 9, 2010
- Human Brain Mapping* *San Francisco, CA*
Presented Poster: "Cost-efficiency in informational systems" June 18, 2009
- Society for Neuroscience* *San Diego, CA*
Invited Talk: "Hierarchical organization of the human multimodal
cortical network and its perturbation by schizophrenia" Nov 4, 2007
- Human Brain Mapping* *Chicago, IL*
Presented Poster: "Topological Dynamics of Synchronized and
Syncopated Finger Tapping" June 14, 2007
- Coordination Dynamics* *Boca Raton, FL*
Presented Poster: "Topological Dynamics of Synchronized and
Syncopated Finger Tapping" Feb 23, 2007
- Society for Neuroscience* *Atlanta, GA*
Presented Poster: "Global, Local, and State-Related Properties of
Small-world Human Brain Networks Using MEG" Oct 14, 2006
- Brain Complexity* *Hinxton, UK*
Presented Poster: "Global, Local, and State-Related Properties of
Small-world Human Brain Networks Using MEG" Sept 27, 2006
- NIH Cambridge/Oxford Colloquium* *Oxford, UK*
Invited Talk: "Global, Local, and State-Related Properties of
Small-world Human Brain Networks Using MEG" June 22, 2006
- NIH Cambridge/Oxford Colloquium* *Bethesda, MD*
Presented Poster: "Wavelet and Graph Theoretic Analysis of
Human MEG Images" June 29, 2005

REFERENCES:

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