

**Wake Forest School of Medicine  
Curriculum Vitae**

**NAME:** Paul J. Laurienti, M.D., Ph.D.

**CURRENT ACADEMIC TITLE:** Professor, Department of Radiology

**ADDRESS:** Department of Radiology  
Division of Radiologic Sciences  
Wake Forest University School of Medicine  
Medical Center Boulevard  
Winston-Salem, North Carolina 27157-1088  
  
Telephone: (336) 716-3261  
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**EDUCATION:**

College:	University of Colorado at Denver	1986-1987
	University of Houston Houston, Texas B.S. (Psychology)	1987-1991

Graduate School:	Neuroscience Graduate Program University of Texas Medical Branch Galveston, Texas Ph.D.	1991-1995
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Predoctoral:	Predocctoral Fellow NINDS Training Grant Neuroscience Graduate Program Marine Biomedical Institute University of Texas Medical Branch Galveston, Texas	1994-1995
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Honors and Awards:	National Student Research Forum's Anatomy and Neuroscience Poster Award	1995
	George Sealy Research Award in Neurology	1995
	Galveston Chapter Poster Award Society of Neuroscience	1995
	James E. Beall II Memorial Award in Anatomy and Neurosciences	1996

Medical School:	University of Texas Medical Branch Galveston, Texas M.D.	1995-1999
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Honors and Awards:	Dean's List	1996, 1997, 1998, 1999
	Honors Graduate	1999
	Alpha Omega Alpha	1998
	Phi Kappa Phi	1998



Professor Department of Radiology Wake Forest University School of Medicine	2011-present
Professor Translational Science Institute Wake Forest University School of Medicine	2011-present

**PROFESSIONAL APPOINTMENTS AND ACTIVITIES:**

National:

NIH Study Sections

Ad hoc Member Clinical/Translational Study Section	June 2011
Ad hoc Member Psychosocial Risk and Disease Prevention (PRDP) Study Section	Sept 2010
Charter Member Medical Imaging Study Section (MEDI)	2006-2010
Ad hoc Member MEDI Study Section	May 2006 Feb. 2006 Oct. 2005 June 2005 Feb. 2005 Oct. 2004
Neuroscience Blueprint Software Design NINDS Study Section	2007
Neuroscience Blueprint Center NINDS Study Section	2006
NCCAM Study Section	2004

NIH Advisory Committees

Member ACCORD – MIND Clinical Trial Planning Committee Bethesda, Maryland	2002
Ad hoc member NIH/NIDA Institutional Review Board	2005
Member SPRINT Advisory Committee	2010-present

Other National Committees

Grant Reviewer University of Pittsburgh	2010 2011
Claude Pepper Older Americans Independence Center Program Committee CompleNet 2012	2012

3rd Workshop on Complex Networks

Melbourne, Florida, USA

International:

Grant Reviewer Ireland Health Research Board	2009
Grant Reviewer Experimental and Translational Medicine Scottish Government	2010
External Member Dissertation Committee Concordia University Department of Psychology Montreal, Canada	2010

Editorial work:

Ad hoc reviewer

*Brain Research*  
*Brain Tomography*  
*Cerebral Cortex*  
*Cognitive Neurodynamics*  
*Cognitive Processing*  
*European Journal of Neuroscience*  
*Experimental Aging*  
*Experimental Brain Research*  
*Frontiers in Integrative Neuroscience*  
*Human Brain Mapping*  
*Journal of Cognitive Neuroscience*  
*Journal of Experimental Psychology: Human Perception and Performance*  
*Journal of Neurophysiology*  
*Journal of Neuroscience*  
*Neurobiology of Aging*  
*NeuroImage*  
*Neuropsychologia*  
*NeuroReport*  
*Neuroscience*  
*Nuclear Medicine and Molecular Imaging*  
*Perception and Psychophysics*  
*Proceedings of the National Academy of Science*  
*PLoS One*  
*PLoS Computational Biology*

**INSTITUTIONAL SERVICE:**

Faculty Appointments:

Kulynych Center for Memory and Cognition Research Wake Forest University School of Medicine	2005-present
J. Paul Sticht Center on Aging and Rehabilitation Wake Forest University School of Medicine	2008-present
Diabetes Research Center Wake Forest University School of Medicine	2009-present

Translational Science Center Wake Forest University - Reynolda Campus Translational Science Institute Wake Forest University School of Medicine	2009-present
Center for Bimolecular Imaging Wake Forest University School of Medicine	2012-present
Center for Integrative Medicine Wake Forest University School of Medicine	2012-present

## Directorships/Chairmanships:

Director Functional Magnetic Resonance Imaging Lecture Series Wake Forest University School of Medicine	2001-2003
Associate Director Medical Student Research Training Program Wake Forest University School of Medicine	2005-2006
Associate Director ANSIR Laboratory Wake Forest University School of Medicine	2006-2008
Assistant Vice Chairman Radiology Research, Department of Radiology Wake Forest University School of Medicine	2006-2009
Co-Director MMS/PhD Program Wake Forest University School of Medicine	2009-2011
Director MD/PhD Program Wake Forest University School of Medicine	2006-2012
Director Medical Student Research Training Program (T35DK007400) Wake Forest University School of Medicine	2009-2012
Chair Research Awards Day Committee Wake Forest University School of Medicine	2012
Director Laboratory for Complex Brain Networks (LCBN) Wake Forest University School of Medicine	2009- present
Director Research Core for Translational Science Center Wake Forest University Reynolda Campus	2010-present

## Dean Appointed Committee:

General Clinical Research Center Advisory Committee Wake Forest University School of Medicine	2005-2011
Institutional Review Board Wake Forest University School of Medicine	2006-2007

Graduate School of Biomedical Science Wake Forest University School of Medicine	2006-2011
Wake Forest University Independent Data Safety and Monitoring Board Wake Forest School of Medicine	2008-2012
Intramural Research Support Committee Wake Forest School of Medicine	2008-2010
Wake Forest University Independent Data Safety and Monitoring Board <i>ad hoc</i> Wake Forest School of Medicine	2012-present
Research Advisory Council Wake Forest School of Medicine	2012-present

## Other Committees and Service:

Member Center for Investigative Neuroscience Wake Forest University School of Medicine Winston-Salem, North Carolina	2001-2004
Interviewer Medical School Admissions Wake Forest University School of Medicine	2001-2005
Member Neuroscience Graduate Program Faculty Wake Forest University School of Medicine	2001-present
Member Kulynych Intramural Grant Review Committee Wake Forest University School of Medicine	2002-2003
Member Neuroscience Graduate Program Admissions Committee Wake Forest University School of Medicine	2002-2005
Member Graduate School Faculty Wake Forest University School of Medicine	2002-present
Advisory Board Member Kulynych Center for Memory and Cognition Research Wake Forest University School of Medicine	2002-present
Counselor Western North Carolina Society for Neuroscience Wake Forest University School of Medicine	2003-2004
Faculty Advisor MD/PhD Program Wake Forest University School of Medicine	2003-2005
Member Translational Science Institute Committee Novel and Clinical Translational Methodologies Wake Forest University School of Medicine	2006-2008

Member Pepper OAIC Data Safety and Monitoring Board Wake Forest University School of Medicine	2006-present
Member J. Paul Sticht Center on Aging Wake Forest University School of Medicine	2007-present
Member Translational Science Institute Committee Research Education, Training and Career Development Wake Forest University School of Medicine	2008-present
Member Center for Diabetes Research Wake Forest University School of Medicine	2009-present
Reviewer Internal Mini-Study Section Office of Research Wake Forest University School of Medicine	2009
Ad Hoc Member Committee on Admissions Wake Forest University School of Medicine	2010-present
Member Translational Science Institute Committee Education Program Wake Forest University School of Medicine	2010-present
Graduate School Reorganization Task Force Wake Forest University School of Medicine	2010
Member Neurosciences Graduate Executive Committee	2010-present
Member Center Integrative Medicine Wake Forest University School of Medicine	2012-present

**PROFESSIONAL MEMBERSHIPS AND SERVICE:**

Texas Society for Biomedical Research UTMB Student Chapter	1993-1995
Society for Neuroscience, Galveston Chapter	1993-1996
Sigma Xi National Research Honor Society	1993-present
Society for Neuroscience	1993-2010
American Medical Association	1995-1999
Texas Medical Association	1995-1999
Organization for Human Brain Mapping	2000-present
International Multisensory Research Forum	2002-present
Western North Carolina Society for Neuroscience	2003-present

**HONORS AND AWARDS:**

The National Institutes of Health LRP Scholar	2003-2009
Wake Forest University "New Investigator in Clinical Sciences Award"	2005
Wake Forest University "Outstanding Mid-Career Faculty Research Award"	2011
Linda and Phillip Lader Renaissance Weekend Fellow	2012

**PROFESSIONAL INTERESTS:**

Dr. Laurienti is the Director of the Laboratory for Complex Brain Networks (LCBN). In 2006, Drs. Paul Laurienti, Jonathan Burdette and Satoru Hayasaka began to discuss how chaos theory might help explain emergence and complexity in the human brain. Through their discussions, they began looking for ways and methods that could capture these non-linear processes. Where traditional neuroscience could use functional magnetic resonance imaging (fMRI) to take snapshots of the brain, it was not sufficient for capturing and studying the brain's dynamic complexity. However, an emerging area of research called Network Science was offering methods and means to quantify and analyze dynamic systems. Believing that no single cognitive process could be isolated without affecting the rest of the brain's system, they moved forward in 2009 to create the Laboratory for Complex Brain Networks. Utilizing state-of-the-art technology, the LCBN collaborates with other national and international scientists to envision and develop new and innovative methods for studying and analyzing emergence in brain networks as well as other complex systems. Ongoing studies use whole-brain connectivity to identify critical network nodes, network neighborhoods, and dynamic changes that occur under various cognitive states. Network science is proving to be a powerful tool for assessing brain structure and function and the LCBN is currently evaluating how dynamic changes in network connectivity may be critical for age-related cognitive decline. Furthermore, through multiple collaborations we are evaluating how obesity and physical function are related to cognitive deficits and altered network connectivity in older adults.

**GRANTS - CURRENT:**

PI or Primary Co-Investigator

R01 NS070917 NINDS Connecting Brain Networks Across Subjects and Across Modalities Principal Investigator: Satoru Hayasaka	05/01/2010 - 04/30/2014 \$313,984 annual	10% effort
R01 DK092237 NIH/NIDDK Action for Health in Diabetes Brain Magnetic Resonance Imaging Ancillary Study (Look AHEAD) Principal Investigator: Mark Espeland	10/01/2011 - 09/30/2015 \$635,910 annual	5% effort
R01 MH097751 NIDA Adolescent Cannabis Use, Complex Brain Network Connectivity & Schizophrenia Risk	12/01/2012 - 11/30/2017 \$748,577 annual	2% effort





**GRANTS - PENDING:**

PI or Primary Co-Investigator

NC Biotechnology Center 01/01/2014 - 12/31/202016 13% effort  
Multidisciplinary Research Grant \$223,654  
Identifying Network Connectivity Using Genetic Algorithms  
This proposal brings together a team to develop new methods for more accurately identifying network connectivity in large time-series data using genetic algorithms (GAs).  
Principal Investigator: **Paul Laurienti**

R01 AG047422 04/1/14-03/31/19 20% effort  
NIH/NIA \$499,107  
Resting Brain Networks and Mobility Function: B-NET  
This study will apply a new paradigm to understand how aging brain networks affect mobility function to develop novel approaches to prevent age-related mobility decline in older adults.  
Co-Principal Investigators: Stephen Kritchevsky and **Paul Laurienti**

R01 AG039102-01 12/01/2010 - 11/30/2015 5% effort  
NIA \$23,188  
Brain changes in old adults participating in a two-year physical activity program (LIFE)  
We propose to evaluate the long-term effects of exercise on brain structure, physiology, and function in 200 participants of a longitudinal ongoing clinical trial, the Lifestyle Interventions and Independence for Elders-MAIN (LIFE-M).  
Principal Investigator: Catarina Rosano  
Subcontract PI: **Paul Laurienti**

R01 NS070917 05/01/2014 - 04/30/2018 10% effort  
NINDS \$313,984 annual  
Connecting Brain Networks Across Subjects and Across Modalities - Renewal  
Principal Investigator: Satoru Hayasaka

Training Grant Mentor

F30 04/01/2014 - 03/31/2017 0% effort  
Ruth L. Kirschstein NRSA, NIA \$173,900 total  
Brain Networks and Self-Regulatory Behavior of Older Adults during Weight Loss  
Trainee: Brielle Paolini

**PAST GRANT HISTORY:**

PI or Primary Co-investigator

T35 DK007400 05/01/1980 - 04/30/2015  
NIDDK  
Short Term Research Training of Medical Student  
Principal Investigator: **Paul Laurienti** (2009-2012)  
Total Grant Amount: \$1,246,714 since 2000

Dana Foundation 11/01/2002 - 05/31/2006  
Evaluating sensory dysfunction in aging using combined fMRI and MRS image analyses  
Principal Investigator: **Paul Laurienti**  
Total Grant Amount: \$100,000

K08 NS42568 04/01/2003 - 03/31/2009  
NINDS  
The Effect of Aging on Cross-Modal Sensory Processing  
Principal Investigator: **Paul Laurienti**  
Total Grant Amount: \$654,293

R21 NS044149 06/01/2004 - 05/31/2006  
NINDS  
Alteration of cross-modal sensory processing in dyslexia  
Principal Investigator: Jonathan Burdette  
Total Grant Amount: \$403,535

WFUBMC GCRC 10/01/2004 - 03/31/2008  
The Effect of Aging on Cross-Modal Sensory Processing

This was a supplement awarded to cover expenses for MRI costs for the grant K08 NS42568  
Principal Investigator: **Paul Laurienti**

R01 EB03880 04/18/2005 - 01/31/2010  
NIBIB  
Effect of Caffeine on functional and Perfusion MRI  
Principal Investigator: **Paul Laurienti**  
Total Grant Amount: \$1,250,000

WFUBMC GCRC 04/18/2005 - 01/31/2010  
Effect of Caffeine on functional and Perfusion MRI  
This was a supplement awarded to assist with participant screening and testing for R01 EB03880.  
Principal Investigator: **Paul Laurienti**

R01 DA020074 04/10/2006 - 12/31/2009  
NIDI  
Decision Making in Marijuana Users  
Principal Investigator: Linda Porrino  
Total Grant Amount: \$1,504,017

R21 AG026353 04/15/2006 - 03/31/2009  
NIA  
Training Multisensory Processing in Older Adults (B-FIT)  
Principal Investigator: **Paul Laurienti**  
Total Grant Amount: \$431,351

WFUBMC GCRC 04/15/2006 - 03/31/2008  
Training Multisensory Processing in Older Adults (B-FIT)  
This was a supplement awarded to assist with participant screening and testing for grant AG02635.  
Principal Investigator: **Paul Laurienti**

R21 NS056272 07/01/2007 - 06/30/2010  
NINDS  
MR Imaging and Genotype/Phenotype Association in a South African Dyslexia Cohort

Principal Investigator: Jonathan Burdette  
Total Grant Amount: \$353,356

Subcontract 08/01/2007 - 07/31/2010  
NIH/U54RR021813 Toga (PI)  
Identifying Age Related Atrophy Using Levelset Registration of Embedded Maps  
Subcontract PI: **Paul Laurienti**  
Total Grant Amount: \$218,921

R01 NS058700 04/01/2008 - 03/31/2013  
NINDS  
Genetic Epidemiology of Cerebrovascular Disease and Cognition in Diabetes  
Principal Investigator: Donald Bowden  
Total Grant Amount: \$3,038,706

R21 NS059793 09/20/2008 - 08/31/2010  
NINDS  
Development of a Power Calculation Tool for Neuroimaging Studies  
Principal Investigator: Satoru Hayasaka  
Total Grant Amount: \$269,360

HHSN 268200900040C 09/14/2009 - 10/31/2012  
NHLBI  
Systolic Blood Pressure Intervention Trial (SPRINT)  
Principal Investigator: David Reboussin  
Total Grant Amount: \$13,711,469

R01 NS039426 09/30/2009 - 09/29/2011  
NINDS  
Supraspinal Processing of Sensory Aspects of Pain  
Principal Investigator: Robert Coghill  
Total Grant Amount: \$168,986

Translational Science Award 07/01/2010 - 06/30/2011  
WFU Translational Science Institute  
Examining the Collaboration Network at Wake Forest University School of Medicine  
Principal Investigator: **Paul Laurienti**  
Total Grant Amount: \$68,000

Intramural Research 07/01/2011 - 06/30/2013  
Support Committee Award  
Wake Forest School of Medicine  
The Effects of Moderate Alcohol Use on Age Related Cognitive Decline  
Principal Investigators: **Paul Laurienti** and Linda Porrino  
Total Grant Amount: \$19,826

Training Grant Mentor

F32 NS054472 05/01/2007 - 06/30/2010  
NINDS  
Aging and Unisensory Influence of Multisensory Processing  
Principal Investigator: Ann Peiffer

Translational Scholar Award 09/01/2007 - 08/31/2009  
WFU Translational Science Institute



7. **Laurienti PJ**. Overcoming obstacles to creativity in geographically fragmented environments: Lessons from small-world networks. In: L. Book, D. Phillips (ed.), *Creativity and Entrepreneurship: Changing Currents in Education and Public Life*. Northampton: Edward Elgar Publishing. (In Press).

#### Editorial work:

##### Section editor

1. Commentary: From Neuron to Brain: Relating neurophysiological principles of multisensory integration to the human brain. In B.E.Stein (ed), *The New Handbook of Multisensory Processes*. Boston: MIT Press. 2012.

#### Journal Articles:

**(Bold number in brackets at the end of reference is the number of times the paper has been cited as of 2/19/2013)**

##### Peer Reviewed

1. Gamkrelidze GN, **Laurienti PJ**, Blankenship JE. Identification and characterization of cerebral-ganglion neurons that induce swimming and modulate swim-related pedal-ganglion neurons in *Aplysia brasiliana*. *J Neurophysiol* 1995; 74: 1444-1462. **(22)**
2. **Laurienti PJ**, Blankenship JE. Parapodial swim muscle in *Aplysia brasiliana*. I. Voltage-gated membrane currents in isolated muscle fibers. *J Neurophysiol* 1996; 76: 1517-1530. **(11)**
3. **Laurienti PJ**, Blankenship JE. Parapodial swim muscle in *Aplysia brasiliana*. II. Ca<sup>2+</sup>-dependent K<sup>+</sup> currents in isolated muscle fibers and their blockade by chloride substitutes. *J Neurophysiol* 1996; 76: 1531-1539. **(12)**
4. **Laurienti PJ**, Blankenship JE. Serotonergic modulation of a voltage-gated calcium current in parapodial swim muscle from *Aplysia brasiliana*. *J Neurophysiol* 1997; 77: 1496-1502. **(7)**
5. **Laurienti PJ**, Blankenship JE. Properties of cholinergic responses in isolated parapodial muscle fibers of *Aplysia*. *J Neurophysiol* 1999; 82: 778-786. **(6)**
6. Blankenship, JE, Yu, B, Gamkrelidze, GN, Laurienti, PJ. Serotonin increases calcium current in swim motoneurons of *Aplysia*. *Am Zool* 1999; 39(5): 109A-109A. **(0)**
7. Yu B, Gamkrelidze GN, **Laurienti PJ**, Blankenship JE. Serotonin directly increases a calcium current in swim motoneurons of *Aplysia brasiliana*. *Am Zool* 2001; 41: 1009-1025. **(5)**
8. **Laurienti PJ**, Burdette JH, Wallace MT, Yen Y-F, Field AS, Stein BE. Deactivation of sensory-specific cortex by cross-modal stimuli. *J Cogn Neuroscience* 2002; 14: 420-429. **(161)**
9. Maldjian JA, Driskill L, **Laurienti PJ**, Burdette JH. Multiple reproducibility indices for evaluation of cognitive functional MR imaging paradigms. *AJNR Am J Neuroradiol* 2002; 23: 1030-1037. **(18)**
10. **Laurienti PJ**, Field AS, Burdette JH, Maldjian JA, Yen Y-F, Moody DM. Dietary caffeine consumption modulates fMRI measures. *NeuroImage* 2002; 17: 751-757. **(57)**

11. Field AS, **Laurienti PJ**, Yen Y-F, Burdette JH, Moody DM. Dietary caffeine consumption and withdrawal: confounding variables in quantitative cerebral perfusion studies? *Radiology* 2003; 227: 129-135. **(47)**
12. **Laurienti PJ**, Wallace MT, Maldjian JA, Susi CA, Stein BE, Burdette JH. Cross-modal sensory processing in the anterior cingulate and medial prefrontal cortices. *Human Brain Mapping* 2003; 19: 213-223. **(37)**
13. Koyama T, McHaffie JG, **Laurienti PJ**, Coghill RC. The single-epoch fMRI design: validation of a simplified paradigm for the collection of subjective ratings. *NeuroImage* 2003; 19: 976-987. **(11)**
14. Maldjian JA, **Laurienti PJ**, Kraft RA, Burdette JH. An automated method for neuroanatomic and cytoarchitectonic atlas-based interrogation of fMRI data sets. *NeuroImage* 2003; 19: 1233-1239. **(1348)**
15. **Laurienti PJ**, Field AS, Burdette JH, Maldjian JA, Yen Y-F, Moody DM. Relationship between caffeine-induced changes in resting cerebral perfusion and blood oxygenation level-dependent signal. *Am J Neuroradiology* 2003; 24: 1607-1611. **(36)**
16. Hairston WD, **Laurienti PJ**, Mishra G, Burdette JH, Wallace MT. Multisensory enhancement of localization under conditions of induced myopia. *Exp Brain Res* 2003; 152: 404-408. **(22)**
17. **Laurienti PJ**, Burdette JH, Maldjian JA. Separating neural processes using mixed event-related and epoch-based fMRI paradigms. *J Neuroscience Methods* 2003; 131: 41-50. **(10)**
18. Maldjian JA, **Laurienti PJ**, Burdette JH. Precentral gyrus discrepancy in digital versions of the Talairach Atlas. *NeuroImage* 2004; 21: 450-455. **(215)**
19. **Laurienti PJ**, Kraft RA, Maldjian JA, Burdette JH, Wallace MT. Semantic congruence is a critical factor in multisensory behavioral performance. *Exp Brain Res* 2004; 158: 405-414. **(67)**
20. Whitlow CT, Liguori A, Livengood LB, Hart SL, Mussat-Whitlow BJ, Lamborn CM, **Laurienti PJ**, Porrino LJ. Long-term heavy marijuana users make costly decisions on a gambling task. *Drug Alcohol Depend* 2004; 76: 107-111. **(92)**
21. **Laurienti PJ**. Deactivations, global signal, and the default mode of brain function. *J Cogn Neuroscience* 2004; 16: 1481-1483. **(17)**
22. **Laurienti PJ**, Perrault TJ, Stanford TR, Wallace MT, Stein BE. On the use of superadditivity as a metric for characterizing multisensory integration in functional neuroimaging studies. *Exp Brain Res* 2005; 166: 289-297. **(68)**
23. Koyama T, McHaffie JG, **Laurienti PJ**, Coghill RC. The subjective experience of pain: Where expectations become reality. *PNAS* 2005; 102(36): 12950-12955. **(174)**
24. Perrier ND, Coker LH, Rorie KD, Burbank NS, Kirkland KA, Passmore LV, Tembreull T, Stump DA, **Laurienti PJ**. Functional MRI of the Brain May be the Ideal Tool for Evaluating Neuropsychologic and Sleep Complaints of Patients with Primary Hyperparathyroidism. *World Journal of Surgery* 2006; 30(5): 686-696. **(12)**

25. **Laurienti PJ**, Burdette JH, Maldjian JA, Wallace MT. Enhanced Multisensory Integration in Older Adults. *Neurobiology Aging*. 2006; 27(8): 1155-1163. **(63)**
26. Ryali S, Casanova R, **Laurienti PJ**, Peiffer AM, Maldjian JA. Estimation of False Discovery Rates for Wavelet-Denoised Statistical Parametric Maps. *Neuroimage* 2006; 33(1): 72-84. **(6)**
27. Casanova R, Ryali S, Baer A, **Laurienti PJ**, Burdette JH, Hayasaka S, Flowers L, Wood FB, Maldjian JA. Biological Parametric Mapping: A Statistical Toolbox for Multi-Modality Brain Image Analysis. *NeuroImage* 2006; 34(1): 137-143. **(82)**
28. Wyatt CL, **Laurienti PJ**. Nonrigid registration of images with different topologies using embedded maps. *Conf Proc IEEE Eng Med Biol Soc* 2006; 1: 4823-4827. **(3)**
29. Peiffer AM, Mozolic JL, Hugenschmidt CE, **Laurienti PJ**. Age-related Multisensory Enhancement in a Simple Audiovisual Detection Task. *NeuroReport*. 2007; 18(10): 1077-1081. **(18)**
30. Hayasaka S, Peiffer AM, Hugenschmidt CE, **Laurienti PJ**. Power and sample size calculation for neuroimaging studies by noncentral random field theory. *NeuroImage* 2007; 37(3): 721-730. **(13)**
31. Hugenschmidt CE, Peiffer AM, Kraft RA, Casanova R, Deibler AR, Burdette JH, Maldjian JA, **Laurienti PJ**. Relating imaging indices of white matter integrity and volume in healthy older adults. *Cerebral Cortex* 2008; 18(2): 433-442. **(49)**
32. Mozolic J, Hugenschmidt CE, Peiffer AM, **Laurienti PJ**. Modality-specific selective attention attenuates multisensory integration. *Exp Brain Research* 2008; 184(1): 39-52. **(18)**
33. Maldjian JA, **Laurienti PJ**, Burdette JH, Kraft RA. Clinical Implementation of Spin Tag Perfusion MRI. *JCAT* 2008 32(3): 403-406. **(8)**
34. Casanova R, Ryali S, Serences J, Yang L, Kraft R, **Laurienti PJ**, Maldjian JA. The impact of temporal regularization on estimates of the BOLD hemodynamic response function: a comparative analysis. *NeuroImage* 2008; 40: 1606-1618. **(7)**
35. Mozolic JL, Joyner D, Hugenschmidt CE, Peiffer AM, Kraft RA, Maldjian JA, **Laurienti PJ**. Cross-modal deactivations during modality-specific selective attention. *BMC Neurology* 2008; 8: 35. **(26)**
36. Peiffer AM, Hugenschmidt CE, **Laurienti PJ**. Fostering a culture of responsible lab conduct. *Science* 2008; 322(5905): 1186. **(2)**
37. Peiffer AM, Maldjian JA, **Laurienti PJ**. Resurrecting Brinley Plots for a Novel Use: Meta-analysis of Functional Brain Imaging Data in Older Adults. *International Journal of Biomedical Imaging* 2008; 2008(1): 1-7. **(0)**
38. Casanova R, Yang L, Hairston WD, **Laurienti PJ**, Maldjian JA. Evaluating the impact of spatio-temporal smoothness constraints on the BOLD hemodynamic response function estimation: an analysis based on Tikhonov regularization. *Physiol Meas*. 2009; 30(5): N37-51. **(0)**



39. Peiffer AM, Hugenschmidt CE, Maldjian JA, Casanova R, Srikanth R, Hayasaka S, Burdette JH, Kraft RA, **Laurienti PJ**. Aging and the Interaction of Sensory Cortical Function and Structure. *Human Brain Mapping* 2009; 30(1): 228-240. **(15)**
40. Addicott MA, Yang LL, Peiffer AM, **Laurienti PJ**. Methodological considerations for the quantification of self-reported caffeine use. *Psychopharmacology* 2009; 203(3): 571-578. **(4)**
41. Hugenschmidt CE, Mozolic JL, Tan H, Kraft RA, **Laurienti PJ**. Age-Related Increase in Cross-Sensory Noise in Resting and Steady-State Cerebral Perfusion. *Brain Topogr.* 2009; 21(3-4): 241-251. **(5)**
42. Hugenschmidt CE, Peiffer AM, McCoy TP, Hayasaka S, **Laurienti PJ**. Preservation of crossmodal selective attention in healthy aging. *Exp Brain Res.* 2009; 198(2-3): 273-285. **(5)**
43. Addicott MA, Yang LL, Peiffer AM, Burnett LR, Burdette JH, Chen MY, Hayasaka S, Kraft RA, Maldjian JA, **Laurienti PJ**. The effect of daily caffeine use on cerebral blood flow: How much caffeine can we tolerate? *Hum Brain Mapp.* 2009; 30(10): 3102-3114. **(12)**
44. Hugenschmidt CE, Mozolic JL, **Laurienti PJ**. Suppression of multisensory integration by modality-specific attention in aging. *Neuroreport* 2009; 20(4): 349-353. **(13)**
45. Maldjian JA, Baer AH, Kraft RA, **Laurienti PJ**, Burdette JH. Fully automated processing of fMRI data in SPM: from MRI scanner to PACS. *Neuroinformatics* 2009; 7(1): 57-72. **(0)**
46. Addicott MA and **Laurienti PJ**. A comparison of the effects of caffeine following abstinence and normal caffeine use. *Psychopharmacology* 2009; 207(3): 423-431. **(10)**
47. Hugenschmidt CE, Hayasaka S, Peiffer AM, **Laurienti PJ**. Applying capacity analyses to psychophysical evaluation of multisensory interactions. *Information Fusion* 2010; 11(1): 12-20. **(2)**
48. Hayasaka S, **Laurienti PJ**. Comparison of characteristics between region-and voxel-based network analyses in resting-state fMRI data. *Neuroimage* 2010; 50(2): 499-408. **(52)**
49. Mozolic JL, Hayaska S, **Laurienti PJ**. A cognitive training intervention increases resting cerebral blood flow in healthy older adults. *Front. Hum. Neurosci.* 2010; 4:16. **(13)**
50. Burdette JH, **Laurienti PJ**, Espeland MA, Morgan A, Telesford Q, Vechlekar CD, Hayasaka S, Jennings JM, Katula JA, Kraft RA, Rejeski WJ. Using network science to evaluate exercise-associated brain changes in older adults. *Front Aging Neurosci.* 2010; 2:23. **(10)**
51. Stein BE, Burr D, Constantinidis C, **Laurienti PJ**, Alex Meredith M, Perrault TJ Jr, Ramachandran R, Röder B, Rowland BA, Sathian K, Schroeder CE, Shams L, Stanford TR, Wallace MT, Yu L, Lewkowicz DJ. Semantic confusion regarding the development of multisensory integration: a practical solution. *Eur J Neurosci.* 2010; 31(10): 1713-1720. **(12)**
52. Joyce KE, **Laurienti PJ**, Burdette JH, Hayasaka S. A new measure of centrality for brain networks. *PLoS ONE* 2010; 5:8. **(12)**
53. Telesford QK, Morgan AR, Hayasaka S, Simpson SL, Barret W, Kraft RA, Mozolic JL, **Laurienti PJ**. Reproducibility of graph metrics in fMRI networks. *Front. Neuroinform.* 2010; 4:117. **(not available)**

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58. Hayasaka S, Hugenschmidt CE, **Laurienti PJ**. A Network of Genes, Genetic Disorders, and Brain Areas. *PLoS ONE* 2011; 6(6): e20907. **(3)**
59. **Laurienti PJ**, Joyce KE, Telesford QK, Burdette JH, Hayasaka S. Universal fractal scaling of self-organized networks. *Physica A* 2011; 390: 3608-13. 1016/j.physa.2011.05.011 **(3)**
60. Moussa MN, Vechlekar CD, Burdette JH, Steen MR, Hugenschmidt CE, **Laurienti PJ**. Changes in cognitive state alter human functional brain networks. *Front. Human Neuroscience* 2011; 5: 1-15. **(5)**
61. Steen M, Hayasaka S, Joyce K, **Laurienti PJ**. Assessing the consistency of community structure in complex networks. *Physical Review E* 2011; 84:016111. **(2)**
62. Simpson SL, Hayasaka S, **Laurienti PJ**. Exponential random graph modeling for complex brain networks. *PLoS ONE* 2011; 6: e20039. **(8)**
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67. Simpson SL, Moussa MN, **Laurienti PJ**. An exponential random graph modeling approach to creating group-based representative whole-brain connectivity networks. *Neuroimage*. 2012; 60(2): 1117-1126. **(6)**

68. Wilkins RW, Hodges DA, **Laurienti PJ**, Steen MR, Burdette JH. Network Science: A New Method for Investigating the Complexity of Musical Experiences in the Brain. *Leonardo Transactions* 2012; 45(3): 282-283. **(not available yet)**
69. Addicott MA, Peiffer AM, **Laurienti PJ**. The effects of dietary caffeine use and abstinence on blood oxygen level dependent activation and cerebral blood flow. *Journal of Caffeine Research* 2012; 2(1): 15-22. **(not available yet)**
70. Paolini B, Burdette JH, **Laurienti PJ**, Morgan AR, Williamson DA, Rejeski WJ. Coping with brief periods of food restriction: mindfulness matters. *Front Aging Neurosci.* 2012; 4:13. **(0)**
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72. Joyce KE, **Laurienti PJ**, Hayasaka S. Complexity in a brain-inspired agent-based model. *Neural Networks* 2012; In Press **(not available yet)**
73. Moussa MN, Steen MR, **Laurienti PJ**, Hayasaka S. Consistency of network modules in resting-state fMRI connectome data. *PLoS One.* 2012;7(8):e44428. Epub 2012 Aug 31. **(not available yet)**
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75. Joyce KE, Hayasaka S, **Laurienti PJ**. The human functional brain network demonstrates structural and dynamical resilience to targeted attack. *PLoS Comput Biol.* 2013 Jan;9(1):e1002885. Epub 2013 Jan 24. **(not available yet)**
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78. Telesford QK, **Laurienti PJ**, Friedman DP, Kraft RA, Daunais The Effects of Alcohol on the Nonhuman Primate Brain: A Network Science Approach to Neuroimaging. *JB.Alcohol Clin Exp Res.* 2013 Jul 26. doi: 10.1111/acer.12181. [Epub ahead of print] **(not available yet)**

#### Technical Reports/Web Publications

1. **Laurienti PJ**, Hugenschmidt CE, Hayasaka S. Modularity maps reveal community structure in the resting human brain. *Nature Precedings* <http://hdl.handle.net/10101/npre.2009.3069.1> (2009).
2. Hayasaka S, **Laurienti PJ**. Degree distributions in mesoscopic and macroscopic functional brain networks. [arXiv:0903.4168v1](https://arxiv.org/abs/0903.4168v1) (2009).
3. Simpson SL, Hayasaka S, **Laurienti PJ**. Selecting an exponential random graph model for complex brain networks. [arXiv:1007.3230](https://arxiv.org/abs/1007.3230) (2010).
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## Abstracts/Scientific Exhibits/Presentations at National Meetings

1. Blankenship JE, **Laurienti PJ**, Gamkrelidze GN. Candidate command neurons for *Aplysia* swimming are tentatively identified in the cerebral ganglion. Soc Neurosci Abstr 1993; 19:1599.
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3. Blankenship JE, **Laurienti PJ**. Serotonin facilitates neuromuscular transmission in parapodia of *Aplysia brasiliana* by broadening motor neurons action potentials. Soc Neurosci Abstr 1994; 20:1597.
4. **Laurienti PJ**, Gamkrelidze GN, Blankenship JE. Ionic currents in dissociated *Aplysia brasiliana* parapodial muscle fibers. Soc Neurosci Abstr 1995; 21:1458.
5. Gamkrelidze GN, **Laurienti PJ**, Blankenship JE. Serotonin enhances calcium current in isolated somata of *Aplysia* parapodial motor neurons. Soc Neurosci Abstr 1995; 21:1458.
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13. Koyama T, McHaffie JG, **Laurienti PJ**, Coghill RC. A new technique for fMRI studies: single-epoch designs. Exhibited at the 8<sup>th</sup> International Conference on Functional Mapping of the Human Brain, Sendai, Japan, June 2-6, 2002. Abstract: Available on CD-Rom, Neuroimage, Vol. 16, No. 2.
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22. Dubray MB, Jennings JM, **Laurienti PJ**. Neural correlates of memory retrieval during an opposition task as measured by event-related fMRI. 2003 Abstract presented at the Annual Meeting of the Psychonomic Society, Vancouver, BC, Canada.
23. Burdette JH, **Laurienti PJ**, Flowers L, Kraft RA, Maldjian JA, Wood FB. Altered auditory-visual interactions in dyslexia: an fMRI study. Abstract: RSNA 2003:462, Chicago, IL
24. **Laurienti PJ**. Differential reactions to multisensory stimuli in "primary" and "non-primary" regions of human cortex. 2004 Abstract: IMRF, Barcelona.
25. Hugenschmidt CE, Hairston WD, Kraft RA, Maldjian JA, Wallace MT, **Laurienti PJ**. Cross-modal deactivations in sensory cortex are modulated by attention. *NeuroImage* 2004; 22 (Suppl 1):S37.
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28. Hugenschmidt CE, Peiffer AM, Bennett EA, **Laurienti PJ**. Modality-Specific Selective Attention: Costs and Benefits in Unisensory and Multisensory Tasks. Program No. 388.4. 2005 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuro. Online.

29. **Laurienti PJ**, Hugenschmidt CE, Peiffer AM. Revisiting the Race Model for Evaluating Multisensory Integration. Program No. 617.20. 2005 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience. Online.
30. Burdette JH, **Laurienti PJ**, Maldjian JA, Flowers DL, Kraft RA, Wood FB. Voxel-Based Morphometric Differences Between Typical and Dyslexic Readers. Program No. 643.1. 2005 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience. Online.
31. Casanova R, Ryali S, Baer A, Pearson K, **Laurienti PJ**, Maldjian JA. The Biologic Parametric Mapping Toolbox. 2005 Abstract, Society for Neuroscience, Washington, DC.
32. Ryali S, Casanova R, **Laurienti PJ**, Peiffer AM, Maldjian JA. Statistical Inference for Wavelet-Denoised Statistical Parametric Maps. Proc. Intl. Soc. Mag. Reson. Med. 14, 2006.
33. Casanova R, Ryali S, Baer A, **Laurienti PJ**, Peiffer AM, Hayasaka S, Burdette JH, Wood F, Maldjian JA. Biological Parametric Mapping. 2006 Abstract, Human Brain Mapping Conference, Florence, Italy, 2006.
34. Hugenschmidt CE, Peiffer AM, Maldjian JA, Casanova R, Ryali S, Burdette JH, Kraft RA, **Laurienti PJ**. Relationships Between Age-Related Changes in White Matter Concentration and Fractional Anisotropy. Prog. No. 489T. 2006 Abstract, HBM Conference, Florence, Italy.
35. Peiffer AM, Maldjian JA, **Laurienti PJ**. Evaluating Age Related Changes in Brain Function Using a Novel Meta-Analysis of fMRI Data. Program No. 133M. 2006 Abstract, Human Brain Mapping Conference, Florence, Italy.
36. Burnett LR, Kraft RA, Maldjian JA, Burdette JH, Chen MY, Yang L, **Laurienti PJ**. Caffeine Induces Bold Signal Decreases in Subjects Without Pre-Scan Withdrawal. 2006 Abstract, Human Brain Mapping Conference, Florence, Italy.
37. Casanova R, Ryali S, Baer A, **Laurienti PJ**, Peiffer AM, Hayasaka S, Burdette JH, Maldjian JA. Biological Parametric Mapping. Program No. 2797. 2006 Abstract, ISMRM. Scientific Conference, Seattle, Washington.
38. Ryali S, Casanova R, **Laurienti PJ**, Peiffer AM, Maldjian JA. Estimation of False Discovery Rates for Wavelet-Denoised Statistical Parametric Maps. 2006 Abstract, ISMRM Scientific Conference, Seattle, Washington.
39. Casanova R, **Laurienti PJ**, Maldjian JA, Peiffer AM, Ryali S. Statistical inference for Wavelet-Denoised Statistical Parametric Maps. Program No. 2858. 2006 Abstract, ISMRM Scientific Conference, Seattle, Washington.
40. Casanova R, Hayasaka S, **Laurienti PJ**, Maldjian JA. A Non-Parametric Approach to SPM Analyses with Voxel-Wise Covariates. 2007 Abstract, Human Brain Mapping Conference, Chicago.
41. Addicott MA, Peiffer AM, Yang LL, Kraft RA, Maldjian JA, Burdette JH, Burnett LR, Chen MY, **Laurienti PJ**. The Effects of Caffeine on Cerebral Perfusion in Withdrawal and Native States. 2007 Abstract, Human Brain Mapping Conference, Chicago.
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44. Mozolic J, Rawley-Payne M, Long A, **Laurienti PJ**. Brain Fitness: A Randomization Controlled Trial of the Effects of Attention Training in Older Adults. 2007 Abstract, Human Brain Mapping Conference, Chicago.
45. Hugenschmidt CE, Peiffer AM, Casanova R, Maldjian JA, Burdette JH, **Laurienti PJ**. Preservation of Default Mode Functioning in Healthy Aging Adults. 2007 Abstract, Human Brain Mapping Conference, Chicago.
46. Addicott MA, Yang LL, Casanova RL, Peiffer AM, Maldjian JM, Burdette JH, Burnett LR, **Laurienti PJ**. The effects of chronic caffeine use on the temporal dynamics of the BOLD signal. 2008 Abstract, Human Brain Mapping Conference, Melbourne Australia.
47. Mozolic JL, Morgan AR, **Laurienti PJ**. Cognitive training impacts brain function and structure of healthy older adults in a randomized controlled trial. 2008 Abstract No. 1315, The Gerontological Society of America Annual Meeting, Washington, D.C.
48. Mozolic JL, Morgan AR, **Laurienti PJ**. Cognitive training impacts functional brain activity and cerebral blood flow of healthy older adults in a randomized controlled trial. 2008 Abstract, Human Brain Mapping Conference, Melbourne Australia.
49. Yang LL, Addicott MA, Peiffer AM, Kraft RA, Maldjian JA, Burdette JH, Burnett LR, Chen MY, **Laurienti PJ**. Caffeine is not a universal BOLD contrast booster. 2008 Abstract, Human Brain Mapping Conference, Melbourne Australia.
50. Hayasaka S, **Laurienti PJ**. Mesoscopic Structure of the Resting-State Small-World Brain Network. 2009 Abstract, Organization for Human Brain Mapping Conference, San Francisco
51. **Laurienti PJ**, Hayasaka S. Network modularity maps reveal sub-components of the default-mode network. 2009 Abstract, Organization for Human Brain Mapping Conference, San Francisco
52. Peiffer AM, Rosano C, **Laurienti PJ**. Does the default mode network influence executive functioning? 2009 Abstract, Human Brain Mapping Conference, San Francisco, California.
53. Peiffer AM, Hugenschmidt CE, Mozolic JL, **Laurienti PJ**. Do structural MRI analyses show evidence for cognitive reserve in the healthy aging brain? 2009 Abstract, The Gerontological Society of America Annual Meeting, Atlanta, Georgia.
54. **Laurienti PJ**, Hugenschmidt CE, Maldjian JA, Wagner B, Hayasaka S. Network Analyses of Multisensory Processing, Int. Multisensory Research Forum, New York City, NY, June 2009.
55. **Laurienti PJ**, Hugenschmidt CE, Mozolic JM, Hayasaka S. Physiological Brain Imaging in the Elderly. Graylyn Conference on Women's Cognitive Health, October 2009.

56. **Laurienti PJ**, Mozolic J, Hugenschmidt CE. Increased Cross-Modal Distractibility in Older Adults. Aging and Speech Communications: Third International Research Conference, October 2009.
57. Hayasaka S, Hugenschmidt CE, **Laurienti PJ**. A Network of Genetic Diseases and Brain Areas. International Imaging Genetics Conference, Irvine, CA, USA. January 2010
58. Simpson SL, Hayasaka S, **Laurienti PJ**. Exponential Random Graph Modeling for Complex Brain Networks. Organization for Human Brain Mapping Conference, Barcelona, Spain. June 2010
59. Joyce K, **Laurienti PJ**, Burdette JH, Hayasaka S. A New Measure of Centrality for Brain Networks. Organization for Human Brain Mapping Conference, Barcelona, Spain. June 2010
60. Telesford Q, Morgan AR, Hayasaka S, Simpson SL, Barret W, Kraft RA, **Laurienti PJ**. Network Reproducibility in the At-Rest fMRI Network. Organization for Human Brain Mapping Conference, Barcelona, Spain. June 2010
61. Morgan A, **Laurienti PJ**, Espeland M, Rejeski W, Jennings J, Katula J, Telesford Q, Vechlekar C, Burdette JH. Exercise-induced increased network connectivity in the elderly: walking improves brain efficiency. Organization for Human Brain Mapping Conference, Barcelona, Spain. June 2010
62. Telesford QT, Joyce KE, Hayasaka S, Burdette JH, **Laurienti PJ**. It's not a small-world after all: Reassessing the ubiquity of small-world networks. Biomedical Engineering Society Annual Meeting, Austin, TX, USA. October 2010
63. Presley T, Morgan A, Bechtold A, Clodfelter W, Dove RW, Jennings JM, Kraft RA, King SB, **Laurienti PJ**, Rejeski JW, Burdette JH, Kim-Shapiro DB, Miller GD. Acute Effect of a High Nitrate Diet on Brain Perfusion in Older Adults. 17th Annual Meeting for Society for Free Radical Biology and Medicine, Caribe Royal Hotel and Conference Center, Orlando, Florida. November 2010
64. Telesford QT, Joyce KE, Hayasaka S, Burdette JH, **Laurienti PJ**. Reassessing the ubiquity of small-world networks. Society for Neuroscience, San Diego, CA, USA. November 2010
65. Hayasaka S, Joyce KE, Telesford QK, Burdette JH, **Laurienti PJ**. Universal power law scaling of self-organized networks. The International School and Conference on Network Science, Budapest, Hungary. June 2011
66. Joyce KE, **Laurienti PJ**, Hayasaka S. Complexity in an agent-based brain model. The International School and Conference on Network Science, Budapest, Hungary. June 2011 (Joyce – Presentation)
67. Telesford DK, Joyce KE, Hayasaka S, Burdette JH, **Laurienti PJ**. The ubiquity of small-world networks: Is it really a small-world? The International School and Conference on Network Science, Budapest, Hungary. June 2011
68. Wilkins RW, Steen M, **Laurienti PJ**, Burdette JB, Hodges DA. The Effects of Music on the Brain: Investigating Music Preference Using Network Science Methods. The International School and Conference on Network Science, Budapest, Hungary. June 2011



69. Joyce KE, **Laurienti, PJ**, Hayasaka S. Evolving an agent based model of the brain using genetic algorithms. Organization for Human Brain Mapping, Quebec City, Quebec. June 2011.
70. Telesford QK, Joyce KE, Hayasaka S, Burdette JH, **Laurienti PJ**. The ubiquity of small-world networks. Organization for Human Brain Mapping, Quebec City, Canada. June 2011.
71. Steen M, Hayasaka S, Lobanov O, **Laurienti PJ**, Coghill R. Individual Differences in Brain Networks During Pain Processing: A Method for Assessing Modularity. Organization for Human Brain Mapping, Quebec City, Canada. June 2011.
72. Telesford QK, Wyatt CL, Kraft RA, **Laurienti PJ**, Daunais JB. The effects of acute and chronic ethanol exposure in non-human primate brain networks. Research Society on Alcoholism. Atlanta, Georgia. June 2011.
73. Smith M, Marsh A, Dagenbach D, Pauca P, Jennings J, Burdette JH, **Laurienti PJ**, Rejeski WJ. Brain Boot Camp: Multi-Sensory Training to Enhance Brain Health and Functional Abilities in Aging. URECA Center Fourth Annual Undergraduate Research Day. September 2011.
74. Burdette JB, **Laurienti PJ**, Morgan AR, Williamson D, Rejeski WJ. The Power of Food Scale Moderates Brain Network Connections During Food Restraint. Obesity Society 2011 Annual Scientific Meeting, Orlando, FL, USA. October 2011.
75. Telesford QK, Murnane KS, Kraft RA, Howell LL, **Laurienti PJ**, Daunais JB. Network differences between the awake and anesthetized rhesus macaque. Society for Neuroscience. Washington, DC, USA. November 2011.
76. Joyce KE, Hayasaka S, **Laurienti PJ**. A Genetic Algorithm for Controlling an Agent Based Model of the Functional Human Brain. Rocky Mountain Bioengineering Symposium. Blacksburg, VA, USA. March 2012. (Joyce – Presentation)
77. Moussa MN, Porrino L, Hayasaka S, Burdette JH, **Laurienti PJ**. Rigid Network Structure Underlies Cognitive Inflexibility in Mature Adults. CompleNet 2012, Melbourne, FL. March 2012.
78. Blair CV, **Laurienti PJ**, Burdette JH. Cognitive-related alterations in network topology and brain function. Aging Cognition Conference, Atlanta, GA, USA. April 2012.
79. Joyce KE, **Laurienti PJ**, Hayasaka S. The human brain functional network is resilient to targeted attack. The 11<sup>th</sup> Annual School of Biomedical Engineering and Sciences Symposium, Winston-Salem, NC, USA. May 2012.
80. Telesford QK, Steen M, Moussa MN, **Laurienti PJ**, Hayasaka S. Average group analysis fails to capture complexity in brain networks. Organization for Human Brain Mapping. Beijing, China. June 2012.
81. Joyce KE, Hayasaka S, Small M, **Laurienti PJ**. Functional brain networks are highly resilient to targeted attack. The International School and Conference on Network Science, Chicago, IL, USA. June 2012.
82. Wilkins R, **Laurienti PJ**, Hodges DA, Burdette JH. From Beethoven to Eminem: Music and Network Science. NetSci. Chicago, IL, USA. June 2012.

83. Hayasaka S, Steen M, Moussa MN, **Laurienti PJ**. Consistency of network modules in resting-state fMRI connectome data. NetSci. Chicago, IL, USA. June 2012.
84. Telesford QT, Burdette JH, **Laurienti PJ**. Understanding dynamics in time-dependent networks: Graph analysis in the adult interactome. NetSci. Chicago, IL, USA. June 2012.
85. Telesford QT, Davenport AT, Kraft RA, **Laurienti PJ**, JB Daunais. Dynamic changes in the brain due acute ethanol exposure in non-human primate brain networks. Research Society on Alcoholism, San Francisco, CA, USA. June 2012.
86. Voss MW, Wong C, Szabo AN, Baniqued P, Burdette JH, McAuley E, **Laurienti PJ**, Kramer AF. The relationship of aerobic fitness to brain network architecture in healthy older adults. Annual Meeting of the Gerontological Society of America, San Diego, CA, USA. November 2012.

## INVITED PRESENTATIONS:

### Academic:

#### Intramural

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|---------|--|
| 09/2001 | The Ultimate Emulsion: Mixing Event-Related and Epoch-Base fMRI<br>ANSIR Seminar Series, Wake Forest University Baptist Medical<br>Center, Winston Salem, NC                         |
| 02/2002 | Evaluating Age-Related Changes in Sensory Processing With fMRI<br>Grand Rounds, Wake Forest University Baptist Medical Center,<br>Winston Salem, NC                                  |
| 06/2002 | Dietary Caffeine Consumption Modulates fMRI Measures<br>ANSIR Seminar Series, Wake Forest University Baptist Medical<br>Center, Winston Salem, NC                                    |
| 10/2002 | fMRI and Behavioral Measure of Auditory/Visual Sensory Integration<br>Department of Psychology Colloquia Series, Wake Forest<br>University Baptist Medical Center, Winston Salem, NC |
| 06/2003 | Physiology of the BOLD Signal<br>ANSIR Seminar Series, Wake Forest University Baptist Medical<br>Center, Winston Salem, NC   |
| 11/2003 | Starbucks or Redbull: Effect of Caffeine on fMRI<br>Radiology Grand Rounds, Wake Forest University Baptist Medical<br>Center, Winston Salem, NC                                      |
| 10/2004 | Sensory Processing in Older Adults<br>Kulynych Center for Memory and Cognition Research, Winston<br>Salem, NC  |
| 03/2005 | The Aging Brain<br>Geriatric Grand Rounds, Wake Forest University Baptist Medical<br>Center, Winston Salem, NC   |
| 06/2005 | The Aging Brain<br>IEEE Lecture Series, SBES, Winston Salem, NC  |

- 09/2005    Sensory Processing in the Aging Brain  
            Young Investigator Award Presentation, Wake Forest University  
            Baptist Medical Center, Winston Salem, NC
- 09/2005    Peering Into the Aging Brain: Advanced Physiological MRI  
            Wake Forest University Vascular Dementia Workshop, Winston  
            Salem, NC
- 03/2006    This is Your Brain on Caffeine  
            General Clinical Research Center Lecture Series, Winston Salem,  
            NC
- 04/2006    Exploring the Final Frontier with Big Magnets: MRI of the Human Brain  
            Wake Forest Institute of Regenerative Medicine, Winston Salem,  
            NC
- 08/2006    This is Your Brain on Caffeine  
            Wake Forest Sleep Disorder Center Grand Rounds, Wake Forest  
            University Baptist Medical Center, Winston Salem, NC
- 11/2006    This is Your Brain on Caffeine  
            Neurology Grand Rounds, Wake Forest University Baptist Medical  
            Center, Winston Salem, NC
- 03/2007    Functional Brain Imaging of Caffeine Withdrawal  
            Psychiatry Grand Rounds, Wake Forest University Baptist Medical  
            Center, Winston Salem, NC
- 07/2007    Brain Fitness  
            Geriatric Grand Rounds, Wake Forest University Baptist Medical  
            Center, Winston Salem, NC
- 09/2007    Evaluating Age Related Cognitive Decline and Cognitive Interventions  
            with Physiological Brain Imaging  
            Graylyn Conference on Women's Cognitive Health, Winston  
            Salem, NC
- 09/2008    Sensory Attention and The Aging Brain  
            2<sup>nd</sup> Annual William Hazard Symposium, Department of  
            Gerontology, Wake Forest University Baptist Medical Center,  
            Winston Salem, NC
- 10/2008    Default Mode and the Aging Brain  
            Women's Health Initiative Annual Conference, Winston Salem, NC
- 02/2009    Applications of Network Theory to Studies of the Human Brain  
            Wake Forest University High Performance Computing  
            Conference, Winston Salem, NC
- 03/2009    Overcoming Creative Obstacles/Lessons from Small World Networks  
            Worlds in the Making: Creativity National Symposium, Wake  
            Forest University, Winston Salem, NC

- 04/2009 Network Science in Biomedical Research  
Computer Science Colloquium, Wake Forest University Baptist  
Medical Center, Winston Salem, NC
- 04/2009 Imaging Complex Brain Networks  
Radiology Grand Rounds, Wake Forest University Baptist Medical  
Center, Winston Salem, NC
- 10/2009 Imaging in the Elderly  
Graylyn Conference on Women's Cognitive Health, Graylyn  
International Conference Center of Wake Forest University,  
Winston-Salem, NC
- 03/2010 Network Science and Its Application to Collaborative Research  
Translational Science Institute Seminar Series, Wake Forest  
University Baptist Medical Center, Winston Salem, NC
- 04/2010 Network Science and Its Application to Collaborative Research  
Nursing Research Council, Wake Forest University Baptist  
Medical Center, Winston Salem, NC
- 06/2010 Team Science  
Nursing Strategic Planning Meeting, Wake Forest University  
Baptist Medical Center, Winston Salem, NC
- 05/2011 Complexity Theory and Biomedical Science  
Mid-Career Investigator Award Presentation, Wake Forest  
University Baptist Medical Center, Winston Salem, NC
- 09/2011 Brain-Body Interactions in Older Adults  
Neuroscience Seminar Series, Wake Forest Baptist Medical  
Center, Winston Salem, NC
- 11/2011 Brain Networks and Obesity in Older Adults  
Radiology Grand Rounds, Wake Forest Baptist Medical Center,  
Winston Salem, NC
- 09/2011 Interactions and Interdependence: Applying New Theories to the Aging  
Brain Geriatric Grand Rounds, Wake Forest University Baptist  
Medical Center, Winston Salem, NC
- 03/2012 Networks and Complex Systems  
Computer Science Undergraduate Lecture, Wake Forest  
University, Winston Salem, NC
- 11/2012 Network Science Applied to Brain Research  
Computer Science Undergraduate Lecture, Wake Forest  
University, Winston Salem, NC
- 12/2012 Interaction and Independence: Applying New Theories to the Aging Brain  
Sticht Center Conference on Aging, Wake Forest School of  
Medicine, Winston Salem, NC

- 02/2013 Complexity and the Brain  
Health and Exercise Science Undergraduate Student Lecture,  
Wake Forest University, Winston Salem, NC
- Extramural
- 11/2001 Imaging Multisensory Processing in the Human Brain with fMRI  
Grand Rounds, Virginia Polytechnic Institute and State University,  
Blacksburg, VA
- 08/2002 An Introduction to Functional Magnetic Resonance Imaging  
Grand Rounds, Virginia Polytechnic Institute and State University,  
Blacksburg, VA
- 09/2002 Integration of Visual and Auditory Stimuli in the Human Brain  
Grand Rounds, Baylor University, Waco, TX
- 09/2002 Imaging Multisensory Processing in the Human Brain With fMRI  
Grand Rounds, University of Texas Medical Branch, Galveston TX
- 06/2004 Differential Reactions to Multisensory Stimuli in “Primary” and “Non-  
primary” Regions of Human Cortex  
International Multisensory Research Forum, Barcelona, Spain
- 10/2005 Multisensory Integration in the Human Brain  
International Dyslexia Association Annual Conference, Denver,  
CO
- 06/2006 This is Your Brain on Caffeine  
Salisbury VA Hospital Research Week, Salisbury, NC
- 10/2007 Modality Specific Selective Attention and Multisensory Integration in  
Older Adults Aging and Speech Communication Conference,  
Indiana University, Indiana
- 03/2008 Multisensory Integration in the Human Brain: Applications to Dyslexia  
Annual Conference of Dyslexia, New York City, NY
- 06/2008 Modality Specific Selective Attention and Multisensory Integration  
Theoretical and Experimental Psychology Conference, University  
of Waterloo, Waterloo, Ontario, Canada
- 10/2008 Sensory Attention in the Aging Brain  
Department of Psychology Grand Rounds, Indiana University,  
Indiana
- 01/2009 Six Degrees of Cognition: Small World Networks in the Human Brain  
University of Texas Health Science Center, San Antonio, TX
- 04/2009 Distractions in Older Adults  
Pepper Center Conference, University of Pittsburgh, Pittsburgh,  
PA.
- 06/2009 Network Analyses of Multisensory Processing  
International Multisensory Research Forum, New York City, NY

- 10/2009 Increased Cross-Modal Distractibility in Older Adults  
Aging and Speech Communication: Third International and Interdisciplinary Research, Indiana Memorial Union Hotel, Bloomington, Indiana
- 01/2010 Network Analyses Applied to Multisensory Integration  
43rd Annual Winter Conference on Brain Research, Breckenridge, Colorado
- 11/2010 Complexity Theory  
Bioinspiration and Biomimetics Course, Wake Forest University, Winston-Salem, North Carolina
- 05/2011 Networks  
Translational Science Center at Wake Forest Reynolda Campus Seminar Series, Wake Forest University, Winston-Salem, North Carolina
- 07/2011 New Methods of Connectivity Analysis  
The UCLA Advanced Neuroimaging Summer program, UCLA, Los Angeles, California
- 09/2011 Complexity in Biology  
Translational Science Freshman Seminar, Wake Forest University, Winston-Salem, North Carolina
- 11/2011 Not Hypothesis Testing and Complexity in Biology  
Sensational Brain Course, UNCSCA, Winston-Salem, North Carolina
- 02/2012 Special Interest Group: Cerebral Networks in Epilepsy: Merging Structure, Function and Clinical Care. Presentation - Evaluating Complex Networks  
American Clinical Neurophysiology Society Annual Meeting, San Antonio, Texas
- 02/2012 The New Scientific Revolution  
TEDx Wake Forest U, Winston-Salem, North Carolina
- 03/2012 Keynote Lecture: Network Science and Complex Systems  
Rocky Mountain Bioengineering Symposium, Blacksburg, Virginia
- 09/2012 Wiring in the Aging Brain  
Renaissance Weekend  
Aspen Institute, Aspen, CO
- 11/2012 The Sensational Brain  
UNC School of the Arts, Winston Salem, NC
- 01/2013 Brains and Other Complex Systems  
University of Illinois at Urbana-Champaign, Urbana, IL
- Industrial:  
04/2004 Sensory Processing in the Aging Brain

Targacept, Inc, Winston Salem, NC

08/2007 Brain Fitness  
Posit Science, San Francisco, CA

09/2008 Caffeine and the Brain  
Unilever, New York City, NY

Workshops and Symposia:

03/2009 Godwin GW, Wiggins W, Hayasaka S, **Laurienti PJ**, Stapleton J.  
Overcoming Creative Obstacles in Geographically Fragmented  
Environments: Lessons from Small World Networks. Wake Forest  
University Creativity Symposium, Winston-Salem, NC.

06/2009 Hayasaka S, **Laurienti PJ**. Overview of Small-World Networks and  
Application in Neuroimaging In The Brain as a Small-World Network:  
From Micro to Macro Scale. Symposium at Human Brain Mapping  
Conference, San Francisco, CA.

Community Engagements:

02/2004 The Aging Brain  
Best Health, Winston Salem, NC

07/2004 The Aging Brain  
Best Health, Winston Salem, NC

10/2004 The Aging Brain  
Kernersville YMCA, Kernersville, NC

12/2004 The Aging Brain  
Best Health, Winston Salem, NC

01/2005 The Aging Brain  
Best Health, Winston Salem, NC

05/2005 The Aging Brain  
Kiwanis Club, Winston Salem, NC

09/2006 Brain Fitness  
Best Health Senior Center Grand Opening, Winston Salem, NC

04/2007 Preparing For a Visit to Your Doctor  
Kiwanis Club, Winston Salem, NC

09/2007 Brain Fitness  
Winston Salem Men's Group, Winston Salem, NC

04/2009 Brain Fitness, The Cliffs, Travelers Rest, SC

08/2009 Brain Fitness, The Cliffs, Travelers Rest, SC

- 12/2010 21st Century Science: Studies of the Complex Human Being  
UNC School of the Arts ARTStem Program
- 02/2011 Brain Training 101  
Half Century Club Founders' Day Program, Wake Forest University,  
Winston Salem, NC
- 02/2011 Is Brain Fitness the Fountain of Youth  
Dean's Forum, Bridger Field House, Wake Forest University, Winston  
Salem, NC
- 02/2011 21st Century Science: Studies of the Complex Human Being,  
Innovation and Creativity Lecturer Series, Winston Salem, NC
- 04/2012 Staying Sharp: Ask the experts about keeping your brain young,  
Panel discussion hosted by the WFU Graduate School of Arts and  
Sciences in collaboration with the Dana Alliance for Brain Initiative,  
Winston Salem, NC
- 09/2012 A Synthetic Brain Model for Clinical Application and Artificial Intelligence  
Winston-Salem Tech Briefing  
Winston-Salem Chamber of Commerce, Winston Salem, NC
- 11/2012 Welcome to Brain Rules  
Inspiring Learning Series, Winston Salem, NC
- 01/2013 Brain Rules and Other Complex Things  
Winston Salem Rotary Club, Winston Salem, NC
- 02/2013 Welcome to Brain Rules  
Greensboro Montessori School, Greensboro, NC
- 03/2013 Synthetic Brains, Facebook and the New Revolution  
SXSW Interactive Programming for 2013, Austin, TX

**PREVIOUS AND CURRENT TRAINEES ADVISED:**

**Current trainees:**

Undergraduate Students

Justyna Rzucidlo                      WFU Student                      2011-2013  
Dr. Laurienti serves as the mentor for Ms. Rzucidlo's research dedicated  
to learning links between cognition and brain networks. This work is being  
completed in collaboration with Dr. Dale Dagenbach.

Robert Musci                      WFU Student                      2012  
Dr. Laurienti serves as the co-mentor for Mr. Musci's senior honors  
thesis. His project is evaluating relationships between brain connectivity  
and physical function in older adults. This work is being completed in  
collaboration with Dr. Anthony Marsh.

Matthew Stanley                      WFU Student                      2012-present  
Dr. Laurienti serves as the mentor for Mr. Stanley's volunteer research  
study. His project is evaluating cascades in brain using human fMRI data.







Carter Brown MD/PhD Student 2002-2005  
Dr. Laurienti was the mentor for Dr. Brown's research endeavors throughout medical school. Carter worked on several fMRI and behavioral studies. He is currently a resident in radiology at the Mayo Clinic in Rochester, MN.

David Joyner Medical Student Summer 2005  
Dr. Laurienti was the mentor for Mr. Joyner during his summer research project. His work was an extension of the ongoing behavioral and imaging research on multisensory integration and aging.

William Barrett Medical Student Summer 2009  
Dr. Laurienti was the mentor for Mr. Barrett during his summer research project. His project was the evaluation of network metrics on various components of an aging invention study.

Kevin Hiatt Medical Student Summer 2011  
Dr. Laurienti was the mentor for Mr. Hiatt during his summer research project. His work used novel network methods evaluation of an existing data set of MRI brain images from a dyslexia cohort.

John Tobben Medical Student Summer 2011  
Dr. Laurienti was a mentor for Mr. Hiatt during his summer research project. His work examined the cognitive effects of obesity in both younger and older adults.

Sean Miller Medical Student Summer 2011  
Dr. Laurienti was a mentor for Mr. Hiatt during his summer research project. His work examined the physical effects of obesity in both younger and older adults.

Daniel Hampton Medical Student Summer 2012  
Dr. Laurienti was a mentor for Mr. Hampton during his summer research project. His work examines the effects of assaulting functional brain networks.

Michelle Grata Medical Student Summer 2012  
Dr. Laurienti was a mentor for Ms. Grata during her summer research project. Her work examines the effects of moderate alcohol use and aging on functional brain networks.

#### PhD Students

Christina Hugenschmidt PhD Student 2003 - 2008  
Dr. Laurienti was the primary mentor for Ms. Hugenschmidt. She worked on a project that assesses the role of selective attention in sensory integration changes in the elderly. Christina completed her PhD training in December of 2008 and is a post-doctoral fellow in the Department of Human Genomics at Wake Forest. She was awarded an NRSA from the NIDDK at the end of her graduate work to fund her post-doctoral training.

Jennifer Mozolic PhD Student 2005 - 2009  
Dr. Laurienti was the primary mentor for Ms. Mozolic. She was awarded

an NRSA from NIA to work on a project to determine if attention training can improve sensory processing in the elderly. Jennifer completed her PhD training in June of 2009, and is currently a faculty member at Warren Wilson College.

Merideth Addicott                      PhD student                      2006 - 2009  
 Dr. Laurienti was the primary mentor for Ms. Addicott. She was awarded an NRSA from NIDA to fund her graduate research investigating caffeine withdrawal and cognitive function. She completed her PhD training in August 2009 and is completing a post-doctoral fellowship in the laboratory of Dr. McClernon at Duke University.

Karen Joyce                              PhD Student                      2009-2012  
 Dr. Laurienti served as a PhD advisor and co-mentor for Ms. Joyce. She is has a patent pending, along with Dr. Laurienti and Satoru Hayasaka., for "Agent-Based Brain Model and Related Methods" developed during her dissertation work. She is currently employed as a scientist with Starling Insights.

#### MD/PhD Students

Christopher Whitlow                      MD/PhD Student                      2002-2003  
 Dr. Laurienti served as the fMRI advisor/co-mentor and dissertation committee chairman for Dr. Whitlow in collaboration with Dr. Linda Porrino. Dr. Whitlow's dissertation focused on the effects of chronic marijuana use on brain function. Dr. Whitlow is currently a faculty member with the Division of Radiologic Sciences at Wake Forest University School of Medicine.

Dino Massoglia                              MD/PhD Student                      Summer 2005  
 Dr. Laurienti served a mentor for Mr. Massoglia for a research elective during his fourth year in medical school.

Oleg Lobanov                              MD/PhD Student                      Summer 2008  
 Dr. Laurienti served as Mr. Lobanov's mentor during his summer research rotation in the MD/PhD Program at Wake Forest University Bowman Gray School of Medicine. He is currently a student in the laboratory of Dr. Robert Coghill. He is expected to graduate with dual degrees in the Spring of 2013.

#### Medical Residents

John Kaufman, MD                      Radiology Resident                      2006 - 2007  
 Dr. Laurienti was the co-mentor for Dr. Kaufman in collaboration with Dr. Maldjian. Dr. Kaufman used quantitative perfusion and diffusion tensor MR imaging techniques to study cerebrovascular disease in diabetics. After completing a fellowship at the University of California, San Francisco Dr. Kaufman joined the Kaiser Permanente Medical Group in Hayward, CA.

Andrew Deibler, MD                      Radiology Resident                      2006 - 2007  
 Dr. Laurienti was a co-mentor for Dr. Deibler. He worked on a project to assess blood flow and functional activity in older adults. Dr. Deibler is currently a radiologist with Forsyth Medical Imaging Center in Winston Salem, NC.

Post Doctoral Fellows

Ann Peiffer, PhD                      Post Doctoral Fellow                      2004 - 2010  
Dr. Laurienti was the primary mentor for Dr. Peiffer. She had prior training in animal behavior and joined Dr. Laurienti's laboratory to gain experience with human functional imaging. She was funded for three years through an NRSA from NINDS. Ann is an instructor in the Department of Radiation Oncology at Wake Forest University.

Luke Burnett, PhD                      Post Doctoral Fellow                      2005 - 2006  
Dr. Laurienti served as Dr. Burnett's mentor during his post-doctoral fellowship. Dr. Burnett has a PhD in neurobiology and came to Dr. Laurienti's laboratory to learn human imaging methods. He served as a fellow in the laboratory for 1 year before he was sent to serve in Iraq. Dr. Burnett is currently an Adjunct Instructor at Wake Forest University Health Sciences as well as a Senior Scientist/Director of Product Development and Research at KeraNetics, LLC.

Lucie Yang, MD, PhD                      Post Doctoral Fellow                      2007 - 2009  
Dr. Laurienti served as Dr. Yang's mentor during her post-doctoral fellowship. She came from clinical Neuroradiology to a full time research position. Dr. Yang investigated the effects of caffeine on multiple aspects of human brain imaging. She is currently a medical officer with the Division of Drug Information at the FDA.

Junior Faculty

Colleen Hanlon                      Instructor                      2008-2010  
Department of Physiology and Pharmacology  
She received the K01 Mentored Research Scientist Development Award from NIDA. Her research involves using functional magnetic resonance imaging to examine neural networks affected in chronic cocaine users. Laurienti served as a member of his mentoring team.

Satoru Hayasaka                      Assistant Professor                      2005-2011  
Department of Biostatistical Sciences  
Former Wake Forest University School of Medicine TSI Scholar  
Current NIH R01 funded Principal Investigator and Associate Professor with tenure. Dr. Laurienti served as his primary mentor

**HOSTED AND VISITING FACULTY**

Walter S. Pritchard                      Intermittent Visiting Scientist                      2009-2010  
Instructor of Psychology                      Adjunct Faculty                      2012-present  
Surry Community College, Dobson, NC  
Dr. Pritchard authored many of the seminal papers in Chaos Theory, Non-linear Dynamics, and Fractal scaling in the human brain in the 1980s and 1990s. His initial mentoring and continued collaboration is a vital component of the LCBN. In 2012 Dr. Pritchard became Adjunct Faculty of the Department of Radiology at Wake Forest School of Medicine. Publications of this collaboration are pending.

Kourtland R. Koch                      Intermittent Visiting Scientist                      2009-2010  
Associate Professor of Special Education  
Ball State University, Muncie, IN

Dr. Koch traveled several times to Wake Forest School of Medicine to collaborate with Dr. Laurienti and learn about functional brain Imaging. Publications of this collaboration are pending.

Janine Jennings	Sabbatical	Spring 2009
Associate Professor of Psychology		
Wake Forest University, Winston Salem, NC		
Dr. Jennings spent her Sabbatical in the Spring of 2009 working with the faculty of the LCBN. Collaborations and publications are ongoing.		

Dale Dagenbach	Sabbatical	Fall 2011
Professor and Chair of Psychology	Visiting Scientist	2012-present
Wake Forest University, Winston Salem, NC		
Dr. Dagenbach spent the Fall semester of 2011 on Sabbatical in the LCBN looking at the differences in brain networks between resting and task induced states. He continues to spend 2-3 days a week working with faculty, staff, and students in the lab. Drs. Dagenbach and Laurienti serve as mentors for Paige Roseman and Justyna Rzucidlo. Collaborations and publications are ongoing.		

W. Jack Rejeski	Sabbatical	2012- 2013
Thurman D. Kitchin Professor		
Director of the Behavioral Physiology Laboratory		
Wake Forest University, Winston Salem, NC		
Dr. Rejeski is spending his extended Sabbatical in the LCBN study the effects of		

Mindfulness and Food Craving on networks in the brain. He is also co-mentoring Brielle Paolini, an MD/PhD student in the LCBN. Collaborations and publications are ongoing.

## COMMUNITY ACTIVITIES AND SERVICES

### Patronage:

Friend of Reynolda Gardens, Winston Salem, NC  
 St. Paul's Episcopal Church, Winston Salem, NC  
 Summit School, Winston Salem, NC

### Volunteer Services:

Bringing Complexity to the Classroom K-9  
 Summit School, Winston Salem, NC

Systems Thinking in Schools Task Force K-12  
 Winston Salem/Forsyth County Schools, Winston Salem, NC