

## **JORDAN P. HAMM**

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### **EDUCATION**

- 2013 Ph.D. University of Georgia  
Neuroscience  
December 4, 2013  
Advisor: Brett A. Clementz, Ph.D.
- 2010 M.S. University of Georgia  
Psychology
- 2008 B.A. University of Georgia  
Philosophy

### **RESEARCH TRAINING**

- 2014 – Current Postdoctoral Research Fellow  
Columbia University  
Department of Biological Sciences  
Advisor: Rafael Yuste, M.D., Ph.D.

### **FUNDING AND AWARDS**

- 2018 Gordon Research Conference Travel Award (\$520) for “Thalamocortical Interactions”
- 2017-22 “Fronto-sensory circuit mechanisms of perceptual novelty processing”, NIMH 1K99MH115082, PI: J.P. Hamm. Sponsor: R. Yuste. Consultants: A. Churchland; J. Gogos (\$950,000 Direct).
- 2017 International Congress on Schizophrenia Research (ICOSR) Young Investigator award and travel stipend (\$1,425)
- 2016-17 “Translational neurophysiology of neuropsychiatric disorders: leveraging the BRAIN initiative” Interdisciplinary Research Initiatives Seed (IRIS) funding program, Columbia University. PI: D. Javitt. Co-PI: J.P. Hamm, R. Yuste. (\$100,000)
- 2014-17 “Two-photon analysis of circuit-level mechanisms of schizophrenia biomarkers”, NIMH F32MH106265, PI: J.P. Hamm. Mentor: R. Yuste. Co-mentors: D. Javitt, J. Gordon. (\$155,000)
- 2013 Herbert Zimmer Award, University of Georgia (\$150)
- 2010-12 Paul D. Coverdell Franklin Foundation Fellowship in Neuroimaging (\$9,000)
- 2009 Multimodal Neuroimaging Training Program Workshop fellowship, Carnegie Mellon & University of Pittsburgh (\$2,500).
- 2008 Travel Award, University of Georgia (\$250)

### **PUBLICATIONS**

- Wenzel, M., **Hamm, J.P.**, Peterka, D.S., Yuste, R. (2017) Reliable and elastic propagation of cortical seizures *in vivo*. *Cell Reports*. 27;19 (13): 2681-2693.
- Hamm, J.P.**, Peterka, D.S., Gogos, J.A., Yuste, R. (2017) Altered cortical ensembles in mouse models of schizophrenia. *Neuron*. 94, 1, 153–167.
- Agetsuma, M., **Hamm, J.P.**, Tao, K., Fujisawa, S., Yuste, R. (2017) Parvalbumin-positive interneurons regulate neuronal ensembles in visual cortex. *Cerebral Cortex*. In press.
- Hamm, J.P.**, Yuste, R. (2016). Somatostatin Interneurons Control a Key Component of Mismatch Negativity in Mouse Visual Cortex. *Cell Reports*. 16, 407–420.
- Carrillo-Reid L., Miller J.E., **Hamm, J.P.**, Jackson J., Yuste, R. (2015). Endogenous Sequential Cortical Activity Evoked by Visual Stimuli. *Journal of Neuroscience*. 35(23):8813-28.
- Clementz, B.A., Sweeney, J.A., **Hamm, J.P.**, Ivleva, E.I., Ethridge, L.E., Pearlson, G.D., Keshavan, M.S., Tamminga, C.A. (2016). Identification of Distinct Psychosis Biotypes Using Brain-Based Biomarkers. *American Journal of Psychiatry*. 173(4):373-84
- Hayrynen, L.K., **Hamm, J.P.**, Sponheim, S.R., Clementz, B.A. (2016) Frequency-specific disruptions of neuronal oscillations reveal aberrant auditory processing in schizophrenia. *Psychophysiology*. 53(6):786-95.
- Hamm, J.P.**, Oliver, W.T., Hudgens-Haney, M., Bobilev, A., McDowell, J.E., Buckley, P.F., Clementz, B.A. (2015). Stimulus Train Duration but Not Attention Moderates  $\gamma$ -band Entrainment Abnormalities in Schizophrenia. *Schizophrenia Research*. 165(1):97-102.
- Mokhtari, M., Narayanan, B., **Hamm, J.P.**, Soh, P., Calhoun, V.D., Ruaño, G., Kocherla, M., Windemuth, A., Clementz, B.A., Tamminga, C.A., Sweeney, J.A., Keshavan, M.S., Pearlson, G.D. (2015) Multivariate Genetic Correlates of the Auditory Paired Stimuli-Based P2 Event-Related Potential in the Psychosis Dimension From the BSNIP Study. *Schizophrenia Bulletin*. 42(3):851-62.
- Ethridge, L.E., **Hamm, J.P.**, Pearlson, G.D., Tamminga, C.A., Sweeney, J.A., Keshavan, M.S., Clementz, B.A. (2015). Event-related Potential and Time-frequency Endophenotypes for Schizophrenia and Psychotic Bipolar Disorder. *Biological Psychiatry*. 77(2):127-36..
- Hamm, J.P.**, Ethridge, L.E., Boutros, N.N., Keshavan, M.S., Sweeney, J.A., Pearlson, G.D., Tamminga, C.A., Clementz, B.A. (2014). Diagnostic Specificity and Familiality of Early versus Late Evoked Potentials to Auditory Paired-Stimuli across the Schizophrenia-Bipolar Psychosis Spectrum. *Psychophysiology*. 51(4):348-57.
- Hamm, J.P.**, Ethridge L.E., Shapiro J.R., Pearlson, G.D., Tamminga, C.A., Sweeney, J.A., Keshavan, M.S., Thaker, G., Clementz, B.A. (2013). Family History of Psychosis Moderates Early Auditory Cortical Response Abnormalities in Non-psychotic Bipolar Disorder. *Bipolar Disorders*. 15(7):774-86.
- Ivleva, E.I., Moates, A.F., **Hamm, J.P.**, Bernstein, I.H., Cole, D., Clementz B.A., Thaker, G., Tamminga C.A. (2013). Smooth Pursuit Eye Tracking, Prepulse Inhibition, and Auditory

ERP Endophenotypes across the Schizophrenia - Bipolar Disorder Psychosis Dimension. *Schizophrenia Bulletin*. 40(3):642-52.

Hudgens-Haney, M.E., **Hamm, J.P.**, Goodie, A.S., Krusemark, E.A., McDowell, J.E., Clementz, B.A. (2013). Neural Correlates of the Impact of Control on Decision Making in Pathological Gamblers. *Biological Psychology*. 92(2):365-72.

**Hamm, J.P.**, Sabatinelli, D., Clementz, B.A. (2012) Alpha Oscillations and the Control of Voluntary Saccadic Behavior. *Experimental Brain Research*. 221(2): 123-128.

**Hamm, J.P.**, Gilmore, C.S., Clementz, B.A. (2012) Augmented Gamma Band Auditory Steady-State Responses: Support for NMDA Hypofunction in Schizophrenia. *Schizophrenia Research*. 138(1): 1-7.

Ethridge, L.E., **Hamm, J.P.**, Shapiro, J.R., Summerfelt, A.T., Keedy, S.K., Stevens, M.C., Pearlson, G., Tamminga, C.A., Boutros, N.N., Sweeney, J.A., Keshavan, M.S., Thaker, G., Clementz, B.A. (2012). Neural Activations During Auditory Oddball Processing Discriminating Schizophrenia and Psychotic Bipolar Disorder. *Biological Psychiatry*. 72(9):766-74.

**Hamm, J.P.**, Dyckman, K.A., McDowell, J.E., Clementz, B.A. (2012) Pre-cue Fronto-Occipital Alpha Phase and Distributed Cortical Oscillations Predict Failures of Cognitive Control. *Journal of Neuroscience*. 32(20):7034-41.

**Hamm J.P.**, Ethridge L.E., Shapiro J.R., Stevens M.C., Boutros N.N., Pearlson, G., Tamminga, C.A., Boutros, N.N., Sweeney, J.A., Keshavan, M.S., Thaker, G., Clementz, B.A. (2012) Spatio-temporal and Frequency Domain Analysis of Auditory Paired Stimuli Processing in Schizophrenia and Psychotic Bipolar Disorder. *Psychophysiology*. 49(4):522-30.

**Hamm, J.P.**, Gilmore, C.S., Picchetti, N, Sponheim, S.R., and Clementz, B.A. (2011). Abnormalities of Neuronal Oscillations and Temporal Integration to Low and High Frequency Auditory Stimulation in Schizophrenia. *Biological Psychiatry*. 69(10):989-96.

**Hamm, J.P.**, Dyckman, K.A., Ethridge, L.E, McDowell, J.E., and Clementz, B.A. (2010). Preparatory activations across a distributed cortical network determine express saccade production. *Journal of Neuroscience*. 30(21):7350-7.

## MANUSCRIPTS

Jayant, K., Wenzel, M., Bando, Y., **Hamm, J.P.**, ... Yuste., R. Targeted intracellular recordings from deep-layer cortical neurons in vivo. *Under review*.

**Hamm, J.P.**, Shymkiv, Y., Yuste, R. Thalamic and prefrontal contributions to sensory context processing. *In preparation*

Parker, D.P., **Hamm, J.P.**, ... Clementz, B.A. Auditory Steady-State EEG Response as a Psychosis Biomarker: Findings from Bipolar-Schizophrenia Network on Intermediate Phenotypes (B-SNIP) Consortium. *Under Review*

## INVITED SEMINARS

**Hamm, J.P.**, "Two-photon Interrogation of Cortical Circuit Dynamics and Pathophysiology"  
Talk Given at Childrens Hospital of Philadelphia (CHOP) and University of  
Pennsylvania (PENN), Oct 5<sup>th</sup> 2017

**Hamm, J.P.** "Unreliable neocortical ensemble activity in pharmacological and genetic mouse  
models supports an attractor pathophysiology of schizophrenia" Talk Given at Rutgers  
University, Oct 4<sup>th</sup>, 2017

**Hamm, J.P.** "Two-photon interrogation of cortical circuit pathophysiology in a translational  
neuropsychiatric framework". Talk Given at Emory University, Aug 15<sup>th</sup> 2017

**Hamm, J.P.**, "Leveraging two-photon and optogenetic neurotechnologies in a translational  
neuropsychiatric framework". Talk given at University of Georgia, Athens, GA. Jun 20<sup>th</sup>  
2017

## CONFERENCE PRESENTATIONS (Talks in italics)

*Hamm, J.P., Shymkiv, Y., Yuste, R. The role of prefrontal inputs to visual cortex in biomarkers  
of sensoricognitive processing deficits. Talk to be given as a symposium at 2018 Society  
for Biological Psychiatry conference in New York, New York. Co-Chair of session.*

*Hamm, J.P., Shymkiv, Y., Yuste, R. Top-Down and Thalamocortical Contributions to Sensory  
Context Processing and Related Biomarkers of Schizophrenia. Talk given at 2018  
Gordon Research Seminar on Thalamocortical Interactions in Italy.*

*Hamm, J.P., Gogos, J.A. Yuste, R. Cell and circuit mechanisms of EEG biomarkers in mouse  
models. Talk given as a symposium 2017 American College of  
Neuropsychopharmacology (ACNP) meeting in in Palm Springs, CA. Co-Chair of  
session.*

*Hamm, J.P., Shymkiv, Y., Yuste, R. Prefrontal functional inputs in visual cortex during  
processing of redundant and novel stimuli. Talk given at 2017 Society for Neuroscience  
Meeting, Washington D.C..*

*Hamm, J.P., Gogos, J.A. Yuste, R. Abnormal neocortical ensemble activity in pharmacological  
and genetic mouse models supports an attractor pathophysiology of schizophrenia. Talk  
given at 2017 International Congress on Schizophrenia Research in San Diego, CA.*

**Hamm, J.P.**, Gogos, J.A. Yuste, R. Mismatch negativity depends on somatostatin interneurons  
and is affected in a genetic model of schizophrenia. Poster presented Nov 2016 at the  
Society for Neuroscience conference in San Diego, CA.

**Hamm, J.P.**, Yuste, R. Sensory cortical ensembles are functionally disorganized in mouse  
models of schizophrenia. Poster presented Nov 2016 at Cell Symposia: Big Questions in  
Neuroscience symposium in San Diego, CA.

**Hamm, J.P., Yuste, R.** *Contribution of Neocortical Interneurons to the Mismatch Negativity. Talk given May 2016 at the Society for Biological Psychiatry research conference (SOBP) in Atlanta, GA.*

Wenzel, M., **Hamm, J.P.**, Peterka, D.S., Yuste, R. Two-photon imaging reveals the population dynamics of spatiotemporally compartmentalized ictal networks *In vivo*. Poster presented at Oct 2015 at the Society for Neuroscience Conference in Chicago, IL.

**Hamm, J.P., Peterka, D.S. Yuste, R..** *Fragmented Cortical Microcircuit Motifs In An Nmdar-Hypofunction Mouse Model Support An Attractor Hypothesis Of Psychotic States. Talk given Oct 2015 at the Society for Neuroscience Conference in Chicago, IL.*

**Hamm, J.P., Yuste, R.** Microcircuit mechanisms of deviance detection biomarkers of psychotic disease. Poster presented at August 2015 Gordon Conference on “Inhibition in the CNS”

**Hamm, J.P., Yuste, R.** *Two-Photon Calcium Imaging Of Visual Cortical Population Dynamics In A Chronic Ketamine Mouse Model Of Schizophrenia. Talk given April 2015 at the International Congress of Schizophrenia Research (ICOSR).*

**Hamm, J.P.,** Oliver, W.T., Hudgens-Haney, M., Bobilev, A., McDowell, J.E., Buckley, P.F., Clementz, B.A. Stimulus duration and context moderate gamma-band auditory neural abnormalities in schizophrenia. Poster presented at April 2013 at the International Congress of Schizophrenia Research (ICOSR), Grande Lakes, Florida

**Hamm, J.P.,** Dyckman, K.A, McDowell, J.E., Clementz, B.A. (2012). Intrinsic frontal alpha and occipital gamma oscillations predict express saccades and antisaccade errors. Poster presented at Society for Neuroscience (SFN) New Orleans, Louisiana

Hudgens-Haney M.E., **Hamm J.P.**, Goodie A.S., Krusemark E.A., McDowell J.E., Clementz B.A. (2012). An MEG study of risk and overconfidence in pathological gamblers. To be presented at the Society for Neuroscience Annual Meeting, New Orleans LA.

Oliver W., **Hamm J.P.**, Hetrick W.P., Clementz B.A. (2012). Auditory gating in schizophrenia: context or ISI? Presented at the Society for Psychophysiological Research Annual Meeting, New Orleans LA.

Hayrynen L.K., **Hamm J.P.**, Sponheim S.R., Clementz B.A. (2012). Frequency-specific disruptions of neuronal oscillations reveal aberrant cortical network properties in schizophrenia. Presented at the Society for Psychophysiological Research Annual Meeting, New Orleans LA.

**Hamm, J.P.,** Ethridge, L.E., Shapiro, J.R., Parker, E.M., Keshavan, M.S, Sweeney, J.S., Pearlson, G., Tamminga, C.A., Thaker, G., Clementz, B.A. (2012). Auditory Evoked Oscillations Discriminate Major Mood and Psychotic Diagnoses. Poster presented at Society of Biological Psychiatry (SOBP) Philadelphia, Pennsylvania.

Ethridge L.E., **Hamm J.P.**, Shapiro J.R., Summerfelt A.T., Keedy S.K., Stevens M.C., Pearlson G.D., Tamminga C.A., Boutros N.N., Sweeney J.A., Keshavan M.S., Clementz B.A.(2012). Late Beta Accentuation and Decreased N2 Amplitude to Auditory Oddball Stimuli Discriminate Psychosis Groups and Co-Occur in First-Degree Relatives. Presented at the Society for Biological Psychiatry Annual Meeting, Philadelphia PA, May.

Hudgens-Haney M., **Hamm J.P.**, Krusemark E.A., Goodie A.S., McDowell J.E., Clementz B.A. (2011). Neural correlates of perceived control and risky decision making in pathological gambling. Paper presented at the Society for Neuroscience Annual Meeting, Washington DC.

**Hamm, J.P.**, Dyckman, K.A, McDowell, J.E., Clementz, B.A. (2011). Pre-trial alpha phase and beta power in frontal cortex predicts antisaccade errors. Poster presented at 2011 Society for Psychophysiological Research (SPR). Boston, Massachusetts.

***Hamm, J.P.**, Gilmore, C.S., and Clementz, B.A. (2011). High gamma (>60Hz) abnormalities in schizophrenia patients during auditory steady-state stimulation. Talk given at 2011 International Congress of Schizophrenia Research (ICOSR). Colorado Springs, Colorado.*

*Clementz B.A., **Hamm J.P.**, Ethridge L., Shapiro J. (2011). Auditory ERPs for discerning psychosis risk among bipolar and schizophrenia families. Presented as part of Electrophysiology Symposium to International Congress on Schizophrenia Research, Colorado Springs, CO.*

**Hamm, J.P.**, Gilmore, C.S., Picchetti, N, Sponheim, S.R., and Clementz, B.A. (2010). Abnormal auditory cortical processing as a function of stimulus density in schizophrenia patients. Poster presented at 2010 Human Brain Mapping Conference (HBM) Barcelona, Spain.

***Hamm, J.P.**, Gilmore, C.S., Picchetti, N, Sponheim, S.R., and Clementz, B.A. (2010). Schizophrenic patients display abnormal neural responses in auditory cortex to increasing rates of stimulation. Talk given at 2010 South East Nerve Net and Georgia-South Carolina Neuroscience Consortium conference. Emory University, Atlanta, Georgia.*

Goodie A.S., Hudgens-Haney M., **Hamm J.P.**, Krusemark E., McDowell J.E., Clementz B.A. (2010). Neural Correlates of the Impact of Control on Decision Making in Pathological Gamblers. Presented at the NCRG Annual Conference on Gambling and Addition, Las Vegas NV.

**Hamm, J.P.**, Dyckman, K.A., Ethridge, L.E, McDowell, J.E., and Clementz, B.A. (2009). Pre-gap alpha phase and preparatory cortical signals determine express vs regular saccade generation. Poster presented at 2009 Event related Potentials International Congress (EPIC). Bloomington, Indiana.

## **EXPERIENCE**

## RESEARCH

- 2014 – present      **Research Fellow**, Yuste Laboratory  
(Rafael Yuste, M.D., Ph.D.) – Department of Biological Sciences,  
Columbia University
- 2008 – 2013      **Research Assistant**, Clinical and Cognitive Neuroscience Laboratory  
(Brett Clementz, Ph.D. and Jennifer McDowell, Ph.D.) – Department of  
Psychology, University of Georgia
- May-Aug 2007      **Research Assistant**, Comparative Cognition Laboratory  
(Jonathan Crystal, Ph.D.) – Neuroscience and Behavior Program,  
Department of Psychology, University of Georgia
- Sept-Dec 2007      **Research Assistant**, Human Cognitive Processing Laboratory  
(Richard Marsh, Ph.D.) – Cognitive Program, Department of Psychology,  
University of Georgia

## TEACHING

- 2010 - 2013      **Instructor on record**, University of Georgia  
Psychology 3980- Research design (Fall 2010)  
Psychology 3990- Research methods lab (Fall 2013)
- 2012      **Instructor on record**, “EEG Oscillations Bootcamp” workshop, Arizona  
State University (Summer)
- 2008 – 2011      **Graduate Teaching Assistant**, University of Georgia  
Psychology 6430 – Applied Regression (Fall 2011)  
Psychology 3230 – Abnormal Psychology (Spring 2009 and Fall 2009)  
Psychology 2101 – Psychology of Adjustment (Fall 2008)

## PROFESSIONAL ACTIVITIES

### Professional Organizations:

**2009-Present:** Society for Neuroscience

**2011-2013:** Society for Psychophysiology

**Invited Peer Reviewer for:** *Journal of Neuroscience, Biological Psychiatry, Psychophysiology, Schizophrenia Bulletin, Schizophrenia Research, Biological Psychology, Neuroimage: Clinical, PLOS ONE, Frontiers in Systems Neuroscience, International Journal of Psychophysiology, European Journal of Neuroscience.*