Gray matter maturation is differentially influenced by early-life and pubertal stressful experiences

4th Annual Flux Congress

Program

September 8-10, 2016

flux

THE SOCIETY FOR DEVELOPMENTAL COGNITIVE NEUROSCIENCE

Hilton St Louis at the Ballpark
St Louis, Missouri, USA

www.fluxsociety.org

4th Annual Flux Congress • September 8–10, 2016

Program-at-a-Glance

	Thursday 08-Sep	Friday 09-Sep	Saturday 10-Sep
8:30 AM	Registration Desk Open 7:30am-5:00pm Posters on Display 8:30am - 5:00pm Welcome Comments 8:30-9:00am	Registration Desk Open 8:30am-5:00pm Posters on Display 8:30am - 5:00pm	Registration Desk Open 8:30am-3:00pm Posters on Display 8:30am - 2:00pm
8:45 AM			
9:00 AM	Oral Session 1 Tuberous Sclerosis Symposium 9:00-11:00am	Oral Session 2 NeuroLaw Symposium 9:00-10:30am	Oral Session 5 ABCD Symposium 9:00-10:30am
9:15 AM			
9:30 AM			
9:45 AM			
10:00 AM			
10:15 AM			
10:30 AM		Break (30 minutes)	Break (30 minutes)
10:45 AM			
11:00 AM	Break (30 minutes)	Oral Session 3 Infant Development Symposium 11:00-1:00pm	Oral Session 6 Parcellating the Human Brain Symposium 11:00-12:15pm
11:15 AM			
11:30 AM	Science of Learning Symposium - Part 1 11:30-12:30pm		
11:45 AM			
12:00 PM			
12:15 PM			Poster Session 3 & Lunch 12:15-1:45pm
12:30 PM	Poster Session 1 & Lunch 12:30-2:00pm		
12:45 PM			
1:00 PM		Poster Session 2 & Lunch 1:00-3:00pm	
1:15 PM			
1:30 PM			
1:45 PM			Oral Session 7 Large Scale Networks Symposium 1:45-3:45pm
2:00 PM			
2:15 PM			
2:30 PM	Science of Learning Symposium - Part 2 2:00-4:00pm		
2:45 PM			
3:00 PM			
3:15 PM			
3:30 PM		Oral Session 4 Translational Animal Models Symposium 3:00-5:00pm	
3:45 PM			Summary & Closing 3:45-4:00pm
4:00 PM	Huttenlocher Lecture 4:00-5:00pm		
4:15 PM			
4:30 PM			
4:45 PM			
5:00 PM			
5:15 PM			
5:30 PM	Welcome Reception Missouri Athletic Club 5:30-7:00pm		
5:45 PM			
6:00 PM		Flux Excursion City Museum 6:00-10:00pm	
6:15 PM			
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8:15 PM			
8:30 PM			
8:45 PM			

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THE SOCIETY FOR DEVELOPMENTAL COGNITIVE NEUROSCIENCE

Program Contents

About the Flux Congress

The aim of the congress is to provide a forum for developmental cognitive neuroscientists to share their findings on the development of brain processes that support cognition and motivation from an integrative neuroscience perspective. Thus, it provides an opportunity for scientists in the field to expand their knowledge base, and also be better informed of translational approaches.

The Flux Society was launched in June 2014, and has seen growth in its membership each year. To learn more about the Flux Society, please visit **www.fluxsociety.org**.

Welcome
to Flux Congress attendees

Welcome to our fourth meeting of Flux, the International Congress for Integrative Developmental Cognitive Neuroscience, in St. Louis! After a full rotation of eastern (Flux 1 in Pittsburgh, PA) and western (Flux 2 in Los Angeles, CA) US locations, and an international venue (Leiden, Netherlands), we are delighted that we are meeting in St. Louis for this year's Flux 4, 2016 where we had approximately 160 abstract submissions and 140 memberships and continue to grow.

St. Louis is appropriately the home of the prestigious Washington University, St. Louis, the Human Connectome Project, and where many of the pioneers and stars of Developmental Cognitive Neuroscience have trained or call(ed) home including our hosts Brad Schlaggar and Deanna Barch, our Program Chair, Damien Fair, our members and speakers Tim Brown, Nico Dosenbach, and Steve Petersen, and our Huttenlocher Lecturer, Michael Posner.

We encourage you to watch the entertaining and informative video of invitation from the Mayor of St. Louis at: https://youtu.be/ENCx8Jj8xRc.

We are particularly excited to have support from the **Jacobs Foundation**, the **Intellectual and Developmental Disabilities Research Center at Washington University in St. Louis** (IDDRC@WUSTL), the **St. Louis Children's Hospital Foundation**, the **McDonnell Center for Systems Neuroscience**, **The Provost's Office at Washington University in St. Louis**, the **Washington University Department of Psychological and Brain Science**, the **Washington University Department of Neurology's Tuberous Sclerosis Center**, and **Elsevier's Developmental Cognitive Neuroscience**, now the official journal of the Flux Society. These collaborations enhance our scientific aims including the ability to provide, for the first time, student travel awards. We were overjoyed to have awarded 10 North American and 5 International student travel awards, along with 3 Early Career Awards for speakers in a symposium on the Science of Learning. We would like to express our sincere and deep gratitude to those who have worked tirelessly to bring you Flux 4, St. Louis.

In particular, we thank this year's conference hosts **Brad Schlaggar** and **Deanna Barch** for the fantastic job they did of securing an exciting conference venue. In keeping with our tradition of providing a chance to interact and form lasting bonds in an outstanding entertaining environment, we are looking forward to the **City Museum** party.

Thank you to **Damien Fair** for the outstanding job you did as the Program chair with your committee members: Sarah-Jayne Blakemore, Tim Brown, Claudia Buss, Hugh Garavan, Mar Sanchez, Ted Satterthwaite, Brad Schlaggar, and Nim Tottenham for organizing an exciting and innovative scientific program.

A special thank you to the 2016 Huttenlocher Awardee **Michael Posner** for his foundational contributions to defining Developmental Cognitive Neuroscience and for opening the meeting by enlightening us with his unique wisdom of the field.

Finally, a warm thank you to the members of the Flux Society and conference participants for making the time to attend the Flux conference and making it such an exciting event!

We would like to extend a warm welcome to new members and invite new members to join. To those who are new or have forgotten, "Flux" is not an acronym but rather a term used to remind us that, as developmental cognitive neuroscientists, we are distinct in our investigations of the dynamic nature of cognition through development as stated in the aim of the Flux Society:

"To advance the understanding of human brain development by serving as a forum for professional and student scientists, physicians, and educators to: exchange information and educate the next generation of developmental cognitive neuroscience researchers; make widely available scientific research findings on brain development; encourage translational research to clinical populations; promote public information by discussing implications on the fields of education, health, juvenile law, parenting, and mental health, and encourage further progress in the field of developmental cognitive neuroscience."

The Flux Society strives to support Flux meetings going forward, but also to expand our ability to provide venues for scientific discussion and translational application.

We have received tremendous positive feedback from previous Flux meetings as well as great suggestions on improvements that have been incorporated into the design of this meeting as we continue to make this unique event serve the needs and ambitions of our growing society. We are actively considering ways that

we can expand as a Society, finding new and interesting ways to enhance discussion and dissemination. We are always looking for those who want to become involved in extending venues for us as a field to advance our science through discussions and collaborations. We have an open search for those who want to head the organization of Webinars to hold discussions on current topics in DCN as well as a newsletter. If you are interested please approach a Board Member at the meeting. We also have a growing job bank that has proven to be very useful to both those seeking and offering positions in DCN. We are happy to hear any suggestions from members regarding either the conference or ways in which the Flux Society can best serve our field.

Finally, **we are delighted to invite you to plan on attending Flux 5**, September 16-18, 2017 in Portland, Oregon **hosted by Nick Allen, Damien Fair, Bonnie Nagel, Jenn Pfeiffer,** and **Fred Sabb**. As you know, **University of Oregon** and **Oregon Health & Science University** are at the forefront of developmental cognitive neuroscience research using both human neuroimaging and animal models. This western US meeting promises to be another extraordinary experience in our continued quest to support growth in our field.

We are looking forward to expanding our understanding of developmental cognitive neuroscience and interacting with attendees and are confident that you will leave with greater understanding, new friends, and enhanced creativity in your approach.

Sincerely,

Beatriz Luna
President

Brad Schlaggar
Vice-President

Silvia Bunge
Executive Secretary

Bruce McCandliss
Executive Treasurer

Welcome
to the 4th Flux Congress

We are excited as a committee and Board to bring to St. Louis a set of diverse speakers that span many important areas in our field. We focused this year's program on "hot topics" in today's developmental cognitive neuroscience landscape. Examples include, The Science of Learning, NeuroLaw, Graph Theory and Complex Network Development, and a special Adolescent Brain and Cognitive Development (ABCD) session, amongst many others. Under this scope, and considering feedback from our members from prior meetings, we welcomed both top senior and junior investigators to present at the oral sessions, as well as several graduate students and postdocs. The hope is that a range of views and important discussions will emerge from this format. These presentations along with the 156 posters at this year's meeting should make for an eventful and fulfilling meeting. Last, we are honored to feature Dr. Michael Posner at the Huttenlocher Lecture who has shaped the field and the trajectories of the science in so many ways.

In addition to our excellent scientific program, we have organized two social events that we hope attendees will enjoy. The Opening Reception will take place from 5:30 PM to 7:00 PM on Thursday, September 8th at the Missouri Athletic Club, only a few blocks from the Congress Venue. We have also organized a fun night of food, dancing and exploration at the City Museum, just a short shuttle ride away in downtown St. Louis. The City Museum, a truly unique St. Louis experience that is a play house for children and adults, is built from repurposed architectural and industrial "found" objects. Check out the "roof atop the city", that includes the Big Eli Ferris Wheel and the Praying Mantis Slide, as well as the Enchanted Caves,10-Story Spiral Slide, and much more! In addition, ask your local hosts about how to sample the wonderful local blues and jazz music venues, another quintessential St. Louis experience. Visit the brand new National Blues Museum (**https://www.nationalbluesmuseum.org**), or get tickets now to the world famous St. Louis Symphony which will kick off the 2016-2017 season on 9/8-9/11 with a symphonic accompaniment of Harry Potter and Sorcerer's Stone, perfect timing for Flux (**http://shop.stlsymphony.org/single/EventDetail.aspx?p=5338**)!

St Louis – Gateway to the West

St. Louis is a thriving and vibrant town that is home to wonderful restaurants, music, theater, outstanding professional sports (Go Cardinals and Blues!) and numerous excellent Universities and Colleges, including Washington University. Washington University was founded in 1853, and is an internationally renowned leader in research, teaching and patient care. Washington University has two main campuses (Danforth and Medical) that bracket Forest Park, the nation's largest urban park and site of the 1904 World's Fair, and has been home to 24 Nobel Laureates. Washington University supports over 6000 undergraduate and over 5000 graduate and professional students in a range of disciplines that include Arts & Sciences, Medicine, Law, Engineering, Social work, Public Health, Art and Architecture. St. Louis is home to many museums and unique historical and cultural attractions, including Forest Park, which houses 10 kilometers of running and biking trails, 2 golf courses, the St. Louis Art Museum, the Missouri History Museum, the St. Louis Science Center and Planetarium, the St. Louis Zoo and the "Muny", America's largest and oldest outdoor musical theatre.

Flux Congress Venue: The Hilton Ballpark Village

The Hilton St. Louis at the Ballpark is a recently renovated venue in the heart of downtown St. Louis, right next to Busch Stadium and Ballpark Village and footsteps from the iconic St. Louis Gateway Arch and numerous other downtown historical, dining and entertainment attractions. Busch Stadium is home to the St. Louis Cardinals Baseball team, who have won 19 National League pennants and 11 World Series championships. The Cardinals will be in town playing the Milwaukee Brewers during the congress, so consider staying over Saturday night to watch the game in beautiful Busch Stadium. The central location and easy access of the Hilton Ballpark Village make it an ideal venue for the Flux Congress.

We look forward to this stimulating meeting and to interaction with all of the wonderful Flux Congress attendees.

Sincerely,

Damien Fair
Grand Poobah and
Flux Congress
Program Chair

Brad Schlaggar and
Deanna Barch
Flux Congress Local Organizing
Committee Chairs

Flux Leadership

Society Executive Committee

Beatriz Luna President	University of Pittsburgh, USA
Brad Schlaggar Vice President	Washington University in St. Louis, USA
Silvia Bunge Executive Secretary	University of California, Berkeley, USA
Bruce McCandliss Executive Treasurer	Vanderbilt University, USA

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Congress Local Organizing Co-Chairs

Brad Schlaggar	Washington University in St. Louis, USA
Deanna Barch	Washington University in St. Louis, USA

Congress Scientific Program Committee

Damien Fair, Chair	Oregon Health and Sciences University, USA
Sarah-Jayne Blakemore	University College London, UK
Tim Brown	University of California, San Diego, USA
Claudia Buss	Institut für Medizinische Psychologie, Germany
Hugh Garavan	University of Vermont, USA
Mar Sanchez	Emory University, USA
Ted Satterthwaite	University of Pennsylvania, USA
Brad Schlaggar	Washington University in St. Louis, USA
Nim Tottenham	University of California, Los Angeles, USA

Flux Congress Management

Podium Conference Specialists

Marischal De Armond
Gabriela Dominguez

General Congress Information

Meeting Venue

Hilton St. Louis at the Ballpark
1 South Broadway
St. Louis, MO 63102 USA
Tel: +1-314-421-1776 Fax: +1-314-331 9029

All congress sessions will take place at this location, the Welcome Cocktail Reception and the Flux Excursion will take place at offsite venues.

Registration

Congress registration fees include access to all sessions including the welcome reception, speaker presentations, grazing lunches, coffee breaks, and poster sessions.

Name Badges

Your name badge is your admission ticket to all conference sessions, reception, lunch, and coffee breaks. Please wear it at all times. At the end of the conference we ask that you recycle your name badge at one of the name badge recycling stations, or leave it at the Registration Desk.

Registration and Information Desk Hours

The Registration and Information Desk, located in the **Arch View Foyer**, will be open during the following dates and times:

Thursday, September 8	7:30 AM – 5:00 PM
Friday, September 9	8:30 AM – 5:00 PM
Saturday, September 10	8:30 AM – 3:00 PM

If you need assistance during the meeting, please visit the Registration Desk.

Staff

Congress staff from **Podium Conference Specialists** can be identified by ribbons on their name badges. For immediate assistance, please visit us at the registration desk in the Arch View Foyer.

Complimentary WIFI Information:

Complimentary Wifi is available in the hotel lobby on the ground floor and in your hotel guestroom. Please note there is no wifi available in the meeting rooms.

Network: Hilton Lobby

Nearby Amenities:

Starbucks – Opens at 6:00 AM daily, located in the Lobby Level of the hotel.

Market Street Bistro and Bar – Open from 6:30 AM daily, located in the Lobby Level of the hotel.

Imo's Pizza – Opens at 11:00 AM daily, located adjacent to the hotel.

Ballpark Village – Opens at 11:00 AM daily, located across the street from the hotel.

Three Sixty Rooftop Bar – opens at 4:00 PM daily, located on the 26th floor of the hotel.

Poster Information

Information on Poster Authors, Poster Numbers and Poster Titles begins on page 20. For a complete list of all poster abstracts visit the Flux website **www.fluxcongress.org**.

Easy reference **Poster Floor Plans** for each session can also be found on page 19 of this program.

Set-Up / Removal

There are three Poster Sessions during the Congress and posters have been allocated to one of the sessions based on poster themes. Poster presenters must set-up and remove their posters during the following times.

Poster Session 1 – Thursday, September 8

Poster Set-up:

Thursday, September 8: 7:30 – 8:30 AM

Poster Hours:

11:00 – 11:30 AM - Morning Break

12:30 – 2:00 PM - Lunch

Removal of all posters by: 5:30 PM on September 8

Poster Session 2 – Friday, September 9

Poster Set-up:

Friday, September 9: 8:00 – 9:00 AM

Poster Hours:

10:30 – 11:00 AM - Morning Break

1:00 – 3:00 PM - Lunch

Removal of all posters by: 5:30 PM on September 9

Poster Session 3 – Saturday, September 10

Poster Set-up:

Saturday, September 10: 8:00 – 9:00 AM

Poster Hours:

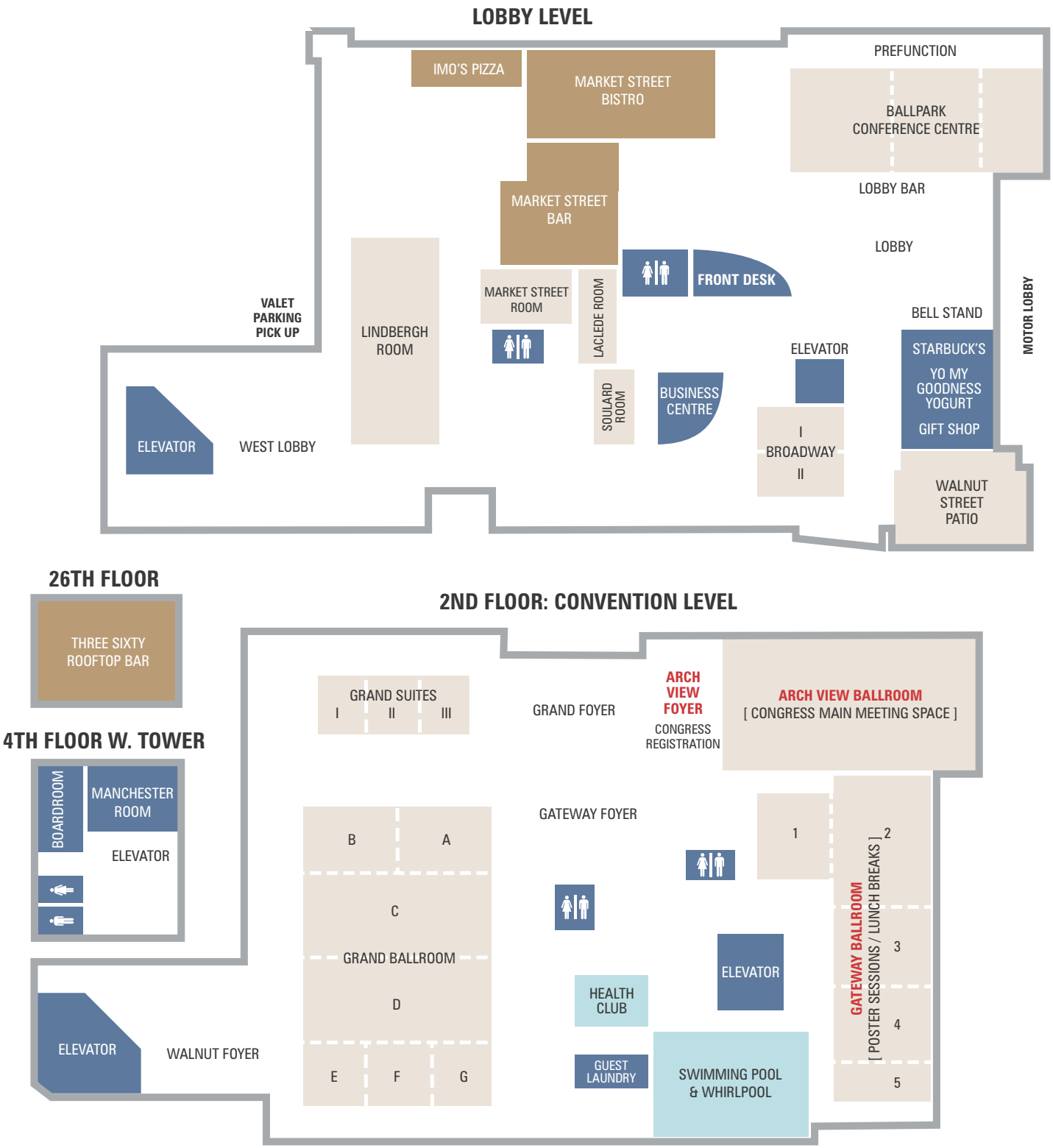
10:30 – 11:00 AM - Morning Break

12:15 – 1:45 PM - Lunch

Removal of all posters by: 2:00 PM on September 10

Congress Venue Floor Plan

Hilton St. Louis at the Ballpark



Flux Social Functions

Opening Reception

The Opening Reception will take place at the **Missouri Athletic Club** (405 Washington Ave.) from 5:30 – 7:00 PM, on Thursday, September 8. Canapes will be served, and there will be a cash bar.

Delegates are invited to walk over to the venue as it is only a short walk away.

See map below for walking directions.

Flux Congress Excursion

This year's Flux excursion will take place at **City Museum** located at 750 N 16th Street in St. Louis. Please note **advance ticket purchase is required for this event** – if you did not purchase a ticket at the time of registration please visit the registration desk to confirm availability.

The museum is a 20-minute walk from the hotel. If you prefer to take transport, **shuttle service** from the hotel begins at 5:30 PM from the Walnut Street exit.

This event is casual: come dressed for climbing and exploring! Sneakers are highly recommended. A cash bar will be available.

St Louis Downtown

Venue Locations

Flux Congress Program Schedule

Day 1 Thursday, September 8

8:30 – 9:00 AM

Welcome Comments

Beatriz Luna University of Pittsburgh, USA
Brad Schlaggar Washington University in St. Louis, USA
Deanna Barch Washington University in St. Louis, USA
Damien Fair Oregon Health and Sciences University, USA

Oral Session 1: Tuberous Sclerosis Symposium

Sponsored by Washington University Tuberous Sclerosis Center
Discussant: **Brad Schlaggar**, Washington University St. Louis, USA

9:00 – 9:20 AM

O.1.1. Tuberous Sclerosis Complex – A Clinical Overview

Anna Jeong Washington University St Louis, USA

9:20 – 9:45 AM

O.1.2. Timing and mechanisms of atypical development in Tuberous Sclerosis Complex

Shafali Jeste UCLA, USA

9:45 – 10:10 AM

O.1.3 Cellular and Molecular Mechanisms of Cognitive Deficits in Tuberous Sclerosis Complex:Insights from Mouse Models

Michael Wong Washington University St Louis, USA

10:10 – 10:35 AM

O.1.4. MRI biomarkers and early medical interventions in TSC

Jurriaan Peters Harvard Medical School, USA

10:35 – 11:00 AM

Q&A

11:00 – 11:30 AM

Coffee Break

Science of Learning Symposium - Part 1

Winners of the Early Career Awards as supported by Jacobs Foundation
Discussant: **Tim Brown** University of California, San Diego, USA

11:30 – 11:50 PM

S.1.1. Motivation and feedback-based learning in adolescent corticostriatal networks

Samantha DePasque UCLA, USA

11:50 – 12:10 PM

S.1.2. Neural patterns of reading and mathematics development from controlled versus naturalistic stimuli

Alyssa Kersey University of Rochester, USA

12:10 – 12:30 PM

S.1.3. Navigating Uncertainty: Neural Correlates of Decisions form Experience in Adolescence

Wouter van den Bos Max Planck Institute for Human Development, Germany

12:30 – 2:00 PM

Poster Session 1 / Lunch

Day 1 Thursday, September 8 *continued*

Science of Learning Symposium – Part 2

2:00 – 2:30 PM **S.2.1. The neural circuitry of skilled reading**
Jason Yeatman University of Washington, USA

2:30 – 3:00 PM **S.2.2. Number Symbols and the Developing Brain**
Daniel Ansari University of Western Ontario, Canada

3:00 – 3:30 PM **S.2.3. Education Neuroscience**
John Gabrieli MIT, USA

3:30 – 4:00 PM **Q&A**

Huttenlocher Lecture

4:00 – 5:00 PM **Brain Changes with Development and Training**
Michael Posner University of Oregon, USA

5:30 – 7:00 PM **Opening Reception** – Missouri Athletic Club

Day 2 Friday, September 9

Oral Session 2: NeuroLaw Symposium

Discussant: **Kim Taylor** Thompson NYU Law, USA

9:00 – 9:20 AM **O.2.1. Development of the social brain and the peer influence on adolescent crime**
Jason Chein Temple University, USA

9:20 – 9:40 AM **O.2.2. When is adolescent an adult?**
Ali Cohen Sackler Institute, USA

9:40 – 10:00 AM **O.2.3. The Risk Triangle: The combined effects of peer presence, social cues and rewards on cognitive control capacity in adolescents**
Adrianna Galvan University of California, Los Angeles, USA

10:00 – 10:30 AM **Q&A**

10:30 – 11:00 AM **Coffee Break**

Oral Session 3: Infant Development Symposium

Discussant: **Joel Nigg** Oregon Health & Science University, USA

11:00 – 11:30 AM **O.3.1. Towards an Increased Understanding of Prenatal Influences on Neurodevelopment**
Alice Graham Oregon Health & Science University, USA

11:30 – 12:00 PM **O.3.2. Brain structure and cognitive development in early childhood**
John Gilmore University of North Carolina, USA

12:00 – 12:30 PM **O.3.3. The Developing Brain : MRI Assessments of structural and Functional Development**
Sean Deoni Brown University, USA

12:30 – 1:00 PM **Q&A**

1:00 – 3:00 PM **Poster Session 2 / Lunch**

Oral Session 4: Translational Animal Models Symposium
Discussant: **Nim Tottenham** Columbia University, USA

3:00 – 3:30 PM **O.4.1. Caregiver Influence Over the Infant Brain and Behavior**
Regina Sulivan NYU School of Medicine, USA

3:30 – 4:00 PM **O.4.2. Early Maternal Care Regulates the Development of Emotional Behavior and Neurocircuitry: a Nonhuman Primate Model**
Mar Sanchez Emory University, USA

4:00 – 4:30 PM **O.4.3. Developmental factors in toggling between actions and habits: Effects of adolescent adversity and relation to depression-like behavior**
Shannon Gourley Emory University, USA

4:30 – 5:00 PM **Q&A**

6:00 – 10:00 PM **Flux Excursion at City Museum** – advance ticket purchase required

Day 3 Saturday, September 10

Oral Session 5: ABCD Symposium
Discussant: **Ted Satterthwaite** University of Pennsylvania, USA

9:00 – 9:20 AM **O.5.1. Real-time motion analytics during brain MRI improve data quality and reduce costs**
Nico Dosenbach Washington University in St Louis, USA

9:20 – 9:40 AM **O.5.2. Overview of the ABCD Study**
Terry Jernigan University of California, San Diego, USA

9:40 – 10:00 AM **O.5.3. Harmonized Human Connectome Protocols for the ABCD Study**
Anders Dale University of California, San Diego, USA

10:00 – 10:30 AM **Q&A**

10:30 – 11:00 AM **Coffee Break**

Day 3 Saturday, September 10 *continued*

Oral Session 6: Parcellating the Human Brain Symposium

Discussant: **Steve Petersen**, Washington University St Louis, USA

11:00 – 11:25 AM **O.6.1. Boundary-based parcellation of human cerebral cortex using functional connectivity MRI**
Evan Gordon VISN 17 Center of Excellence (VISN CoE), USA

11:25 – 11:50 PM **O.6.2. A multimodal parcellation of human cerebral cortex**
David Van Essen Washington University St Louis, USA

11:50 – 12:15 PM **Q&A**

12:15 – 1:45 PM **Poster Session 3 / Lunch**

Oral Session 7: Large Scale Networks Symposium

Discussant: **Olaf Sporns** University of Indiana, USA

1:45 – 2:15 PM **O.7.1. Richness of the human brain network**
Martijn Van Den Heuvel University Medical Center Utrecht, The Netherlands

2:15 – 2:45 PM **O.7.2. Genetic and developmental influences on large-scale brain networks**
Alex Fornito Monash University, Australia

2:45 – 3:15 PM **O.7.3. Evolution of brain network dynamics in neurodevelopment**
Danielle Bassett University of Pennsylvania, USA

3:15 – 3:45 PM **Q&A**

3:45 – 4:00 PM **Summary & Closing**

Flux Congress Oral Presentations

Thursday, September 8

Oral Session 1:
Tuberous Sclerosis Symposium

Sponsored by the Tuberous Sclerosis Center at Washington University School of Medicine

Washington University
Tuberous Sclerosis Center

Discussant: **Brad Schlaggar**, Washington University in St Louis

Anna Jeong, Washington University in St Louis

O.1.1.Tuberous Sclerosis Complex - A Clinical Overview

Tuberous Sclerosis Complex (TSC) is model disorder for the study of cognitive dysfunction, epilepsy, and autism. This talk will serve as an overview of TSC, specifically addressing the clinical manifestations, pathological features, and inheritance pattern of the disease. The underlying pathophysiology of TSC will also be discussed, with a focus on the mechanistic/mammalian (mTOR) pathway.

Shafali Jeste, UCLA

O.1.2. Timing and mechanisms of atypical development in Tuberous Sclerosis Complex

Tuberous Sclerosis Complex confers a high risk for neurodevelopmental disorders, including Autism Spectrum Disorder (ASD) and Intellectual Disability (ID). The high rate of ASD and ID, combined with the fact infants are diagnosed with the genetic syndrome prior to the onset of social communication or cognitive delays, has led to TSC being considered a model disorder for studying the emergence of atypical development. We recently completed the first prospective, longitudinal study of early development in infants with TSC (Jeste, 2014, 2016), with the goal of defining the timing and understanding the emergence of developmental delays in infancy. We integrated electrophysiological and behavioral assays to investigate specific mechanisms underlying atypical development, with particular focus on visual processing, face perception, attention and nonverbal communication. Results from this study have informed a new early intervention study targeting social communication skills in these high risk infants.

Michael Wong, Washington University in St Louis

O.1.3. Cellular and Molecular Mechanisms of Cognitive Deficits in Tuberous Sclerosis Complex: Insights from Mouse Models

Cognitive deficits, autism, and epilepsy are common neurological manifestations of tuberous sclerosis complex (TSC), but biological mechanisms causing the neurological phenotype of TSC are poorly understood. The prototypic structural brain abnormalities of cortical tubers in TSC led to the "tuber hypothesis", in which these gross pathological lesions account for cognitive and other neurological dysfunction. However, recent advances in molecular genetics have identified cellular and molecular abnormalities, such as in the mTOR pathway, which contribute to neurological symptoms of TSC independent of tubers. Mouse models have been particularly useful in identifying underlying mechanisms and therapeutic strategies for neurological deficits in TSC.

Jurriaan Peters, Harvard Medical School

O.1.4. MRI biomarkers and early medical interventions in TSC

The neurological phenotype in Tuberous Sclerosis Complex (TSC) is highly variable and unpredictable. It is determined by multiple interrelated factors including genotype, clinical variables, and lesion burden. Improved long-term cognition with early treatment of epilepsy has been reported in small retrospective series. Recently, routine clinical EEG abnormalities were shown to precede seizure onset, allowing for risk-stratification in a treatment trial with preventative anti-seizure medication. Early structural magnetic resonance imaging (MRI) studies revealed a group effect of lesion burden, but had no individual predictive ability. More recently, diffusion tensor imaging (DTI) metrics of the normal appearing white matter (NAWM) were associated with outcome measures. Moreover, a longitudinal DTI study showed improvement of white matter maturation in patients treated with mTOR inhibitors. Although currently still non-specific, DTI could be a biologically relevant, non-invasive and widely available biomarker for neurological outcome in TSC.

Science of Learning Symposium: Part 1

Winners of the Early Career Award, supported by the Jacobs Foundation

JACOBS FOUNDATION
Our Promise to Youth

Discussant: **Tim Brown**, University of California, San Diego

Samantha DePasque, UCLA

S. 1.1. Motivation and feedback-based learning in adolescent corticostriatal networks

During adolescence, youth must learn about the consequences of their choices as they hone their decision making skills. Performance-related feedback is one tool educators use to guide learning; however, its learning efficacy depends upon motivation. Corticostriatal systems play a critical role in motivation and learning, so it is important to understand how ontogenetic changes in these systems might scaffold feedback-based learning. This study uses fMRI to compare adolescents' (age 11-15) and adults' (age 23-30) neural responses to feedback under varying motivational contexts. Participants complete a learning task in three phases: 1) study, 2) feedback, 3) post-test. During the feedback phase, 4 blocks of trials were framed as a test (threat) and 4 as practice (nonthreat). Regardless of motivational condition, both age groups improve after feedback, and adults outperform adolescents. However, at post-test, adolescents achieve the same percent correct as adults for items previously answered incorrectly, having corrected significantly higher numbers of errors under threat. Feedback engages the same brain network in both age

groups, including striatum, mPFC, and PCC. Under threat, adolescents exhibit higher activation to feedback in amygdala, hippocampus, insula, and mPFC. ROI analyses identified age x threat interactions in nucleus accumbens, caudate, amygdala, and hippocampus, suggesting age-related differences in the effects of the motivation manipulation. Further analyses will examine relationships between these results and individual differences in achievement motivation.

Alyssa Kersey, University of Rochester

S.1.2. Neural patterns of reading and mathematics development from controlled versus naturalistic stimuli

Patterns of neural activity evoked by stimuli in well-controlled tasks are important for isolating the neural substrates of cognitive functions. However, that approach may not be ideal for measuring individual variability in neural functioning over development. Our study compares children's neural responses to reading and mathematics stimuli in controlled tasks versus naturalistic educational videos using functional magnetic resonance imaging (fMRI). First, we measure neural activation from 4- to 8-year-old children during controlled mathematics and reading tasks and compare those patterns to activations that relate to individual variability in mathematics and reading. Next, we compare activation patterns elicited by controlled tasks with those related to natural viewing of educational videos. The data show dissociations between the functional networks underlying reading versus mathematics. Within those networks some regions show uniform patterns of activation over development whereas others show robust individual variability related to cognitive development in each domain. This suggests that the naturalistic and controlled stimulus approaches provide distinct but complimentary information about neural development. These results are important for understanding children's cognitive and neural development in the real world.

Wouter van den Bos, Max Planck Institute for Human Development

S.1.3. Navigating Uncertainty: Neural Correlates of Decisions form Experience in Adolescence

Despite the increased prevalence of adolescent risk-taking behavior in the real world, laboratory evidence of adolescent specific risk taking propensity remains scarce. In contrast with the lab, in the real world adolescents often have only incomplete information about risks, but may have the opportunity to gather more information before they decide. There is currently very little known about how adolescents make decisions under these uncertain conditions. To address this issue we studied how adolescents make decisions based on experience. In a large behavioral study (N=105,ages 8-22) we found adolescents searched for less information before making a decision, were less averse of uncertainty, and made more risky decisions. In a follow up fMRI study, comparing adults (N=25, ages 18-25) and adolescents (N=30, ages 11-15), we focused on the processes involved in learning probabilities through experience and subsequent decision-making. Again, we found that adolescents were less skilled in learning probabilities and were more risk-seeking. Furthermore, we found that the VMPFC is encoding the uncertainty during learning and decision-making. However, this was not the case for the adolescents. This suggests that adolescents may not take the uncertainty associated with their choices into account. This hypothesis was further supported by our finding that adolescents self-reported confidence was not well calibrated. This research provides important new insights in the role of learning processes that contribute to increased risk-taking in adolescence.

Science of Learning Symposium: Part 2

Jason Yeatman, University of Washington

S.2.1. The neural circuitry of skilled reading

Quantitative neuroimaging measurements have generated new insights into the neurobiology of learning and provided a means to understand the mechanisms underlying individual differences in academic performance. For example, learning to read depends on communication between visual, auditory and language processing circuits. The white matter tracts that carry signals between these regions are critical for skilled reading. We find that the dynamics of an individual's white matter development predicts their acquisition of reading skills and that this biological process can be influenced through targeted behavioral interventions. These findings pave the way for conversations between education and neuroscience on how to optimize reading instruction with respect to brain development.

Daniel Ansari, University of Western Ontario

S.2.2. Number Symbols and the Developing Brain

Numerical symbols are a recent cultural invention. I will review what has been learned from developmental cognitive neuroscience research about the way in which numerical symbols are represented in the brain and mind. I will examine what is known about developmental changes in the brain representation of number symbols and how individual differences in symbolic number processing skills (such as mental arithmetic) relate to variability in brain activation during symbolic number processing and the educational implications thereof. Finally, I will discuss several future directions for research on the brain's representation of number symbols.

John Gabrieli, MIT

S.2.3. Education Neuroscience

Education neuroscience aims to understand the brain basis of learning that supports academic achievement. I will summarize a number of studies in which we have examined brain differences associated with difficulty in learning to read (dyslexia) and with the relation of socioeconomic status (family income, parental education) to performance on statewide standardized tests that are widely used to assess academic achievement.

Huttenlocher Lecture

Michael Posner, University of Oregon

Brain Changes with Development and Training

During development connectivity improves particularly between remote brain areas. Adults respond much faster than children probably related in part to this improved connectivity. Children and adults also improve in reaction time with practice on the task. For adults, we have shown that a month of mental training with meditation results first in improved axial diffusivity and later radial diffusivity. In this lecture we examine similarities and differences between development and training in the brain mechanisms related to the speed of responding.

Friday, September 9

Oral Session 2:
NeuroLaw Symposium

Discussant: **Kim Taylor Thompson**, NYU Law

Jason Chein, Temple University

O.2.1. Development of the social brain and the peer influence on adolescent crime

Unlike their adult counterparts, adolescents are more likely to commit both violent and non-violent crimes when in the presence of their peers. While this phenomenon has traditionally been explained in terms of affiliation patterns and explicit peer pressure, our work has explored how structural and functional brain development might account for the increase in social influence observed during adolescence. In this talk, I will discuss findings regarding the links between structural development and sensitivity to social information, and how development impacts activation and functional connectivity as adolescents render decisions about the potential risks and rewards of their actions.

Ali Cohen, Sackler Institute

O.2.2. When is adolescent an adult?

The age of adulthood varies for different legal and social policies. We assessed cognitive control in neutral and emotionally arousing situations, which may be relevant to these policies. Eighteen- to 21-year-olds showed diminished performance, relative to adults over 21, under brief and prolonged negative emotional arousal. Differences in performance were paralleled by decreased activity in fronto-parietal circuitry, implicated in cognitive control, and increased sustained activity in the ventromedial prefrontal cortex, involved in emotional processes. These findings suggest a developmental shift in cognitive capacity under negative emotion that coincides with dynamic changes in prefrontal circuitry and may inform age-related policies.

Adrianna Galvan, University of California, Los Angeles

O.2.3. Risk Triangle: The combined effects of peer presence, social cues and rewards on cognitive control capacity in adolescents

The developmental science literature has examined the independent contextual effects of peer presence, social cues and rewards on adolescent decision-making and cognitive control. Yet, these contextual factors often co-occur in real world social situations for teens. The current study examined the combined effects of all three factors on cognitive control capacity and underlying neural circuitry using a task with experimental manipulations that may better capture real world interactions. A community sample of 176 participants (71 adolescents, 48 young adults, and 57 adults) from Los Angeles and New York City were scanned while performing an emotional go/no-go task alone or in the presence of a virtual peer, matched in age and gender.. The task included brief social cues and sustained periods of arousal (e.g., anticipation of winning money). Compared to older age groups, adolescents showed diminished cognitive control capacity to positive social cues when anticipating reward in the presence of peers than when alone. This behavioral pattern was paralleled by enhanced orbitofrontal activation in the adolescent group relative to the older age groups. Together, the results suggest a common neural and behavioral effect of social and reward influences on cognitive control capacity in adolescents and that prior studies may be underestimating the impact of peers on this capacity in real world situations for teens.

Oral Session 3:
Infant Development Symposium

Discussant: **Joel Nigg**, Oregon Health & Science University

Alice Graham, Oregon Health & Science University

O.3.1. Towards an Increased Understanding of Prenatal Influences on Neurodevelopment

Identifying prenatal influences on brain development is of critical importance for understanding risk for psychiatric disorders and potential for preventive intervention. We have examined the influence of prenatal stress and nutrition on the newborn brain, and cognitive and emotional development through 24-months-of-age. The results suggest the importance of considering specific stress-sensitive aspects of maternal-placental-fetal (MPF) biology, such as the pro-inflammatory cytokine interleukin-6, which we have found to be associated with newborn amygdala volume and connectivity. The results also highlight the utility of modeling approaches which allow for inclusion of a broad range of prenatal influences to predict neurodevelopment through 24-months-of-age.

John Gilmore, University of North Carolina

O.3.2. Brain structure and cognitive development in early childhood

Early childhood is a period of rapid development of brain structure and cognitive function, though very little is known about structure-function relationships during this time. The

UNC Early Brain Development Study is a longitudinal imaging study of brain development from birth to age 6 years in typically developing children, children at high risk for psychiatric disorders, and twins. Major patterns of gray and white matter development in the first years of life will be reviewed, and new information about the relationships between cortical gray and white matter growth and cognitive development at ages 1 and 2 years will be presented.

Sean Deoni, Brown University

O.3.3. The Developing Brain : MRI Assessments of structural and Functional Development

How does the healthy brain grow? Across the first 1000 days of a child's life (from conception to age 2) and throughout early childhood, the brain undergoes remarkable change in response to diverse genetic and environmental pressures. This age span encompasses the most rapid period of brain growth, and coincides with the emergence of nearly all fundamental cognitive and behavioral skills. Activity-dependent processes such as synaptogenesis, synaptic pruning, and myelination help shape the neural systems that underlie these functions; with deviations associated with a spectrum of cognitive and behavioral abnormalities. Magnetic resonance imaging allows the characterization of complementary aspects of tissue maturation, including cortical morphology, white matter microstructure, tissue fibre architecture, as well as brain function and connectivity. Adopting these techniques for use in pediatric populations, salient new insight into brain maturation, including timelines of development, relationships between evolving brain structure and cognitive function, and potential alterations in specific disorders, can be elucidated. In this talk, we will highlight results from on-going longitudinal studies of fetal, infant, and early child neurodevelopment, specifically looking at patterns of development and their relationship to evolving cognitive functioning. Further, we will broadly examine potential environmental influences that affect early development.

Oral Session 4:
Translational Animal Models Symposium

Discussant: **Nim Tottenham**, Columbia University

Regina Sulivan, NYU School of Medicine

O.4.1. Caregiver Influence Over the Infant Brain and Behavior

In many mammalian species, including humans and rodents, the caregiver regulates the infant brain to alter brain and behavior. Here we use rodent mother-infant interactions to illustrate maternal influence over pup brain activity using ecologically relevant examples of how the attachment figure defines brain activity and social signals. This work illustrates how learned cues from the mother influence neurobehavioral processing of fear and safety in infancy, but also how poor quality infant attachment to the mother compromises this maternal influence.

Mar Sanchez, Emory University

O.4.2. Early Maternal Care Regulates the Development of Emotional Behavior and Neurocircuitry: a Nonhuman Primate Model

Early life stress, including adverse experiences such as child maltreatment, lead to increased risk for psychopathology. Evidence from a translational macaque model of infant maltreatment shows negative developmental impacts on social behavior, emotional and stress regulation, and the developmental trajectory of underlying cortico-limbic circuits. Using a crossfostering, randomized, design to disentangle experience from heritability effects and longitudinal neuroimaging approaches we have detected reduced prefrontal-amygdala connectivity, resulting in impaired fear regulation in maltreated animals during adolescence. Nonhuman primates are unique animal models to examine neurodevelopmental underpinnings and sensitive periods of early adverse experiences of translational value for humans.

Shannon Gourley, Emory University

O.4.3. Developmental factors in toggling between actions and habits: Effects of adolescent adversity and relation to depression-like behavior

The prefrontal cortex undergoes structural reorganization and refinement during adolescence. This plasticity may open a window of vulnerability to insults and the development of neuropsychiatric illnesses such as depression. I will discuss evidence collected from both male and female mice that deep-layer excitatory prefrontal cortical neurons remodel considerably in response to social isolation or stress hormone exposure in adolescence. Further, some neural subsets fail to recover by adulthood. Aberrant neural structures are associated with anhedonic-like behavior and a propensity to engage reward-seeking habits in adulthood. Identification of associated factors such as Rho-kinase signaling may elucidate novel mechanisms of, and therapeutic approaches to, neuropsychiatric disease.

Saturday, September 10

Oral Session 5:
ABCD Symposium

Discussant: **Ted Satterthwaite**, University of Pennsylvania

Nico Dosenbach, Washington University in St Louis

O.5.1. Real-time motion analytics during brain MRI improve data quality and reduce costs

Even sub-millimeter movements of the head between measurements systematically distort MRI data, especially functional connectivity metrics. Motion-driven distortions can be removed by excluding data frames with > 0.2 mm framewise displacement (FD) relative to the previous data frame. While effective, post-hoc frame censoring can lead to

data loss rates of up to 50%, forcing MRI researchers to collect large amounts of buffer data, to decrease the risk of having to exclude entire subjects because of insufficient low-movement data. Even when using this very expensive 'overscanning' approach, researchers will still have to exclude some subjects from their final cohorts because of excessive head motion. Therefore, we developed an easy-to-setup, easy-to-use fMRI Integrated Real-time Motion Monitoring (FIRMM) software suite that provides scanner operators with head motion analytics in real-time, allowing them to scan each subject until the required amount of low-movement data has been collected. Our analyses show that using FIRMM to identify the scanning sweet spot that provides the required amount of low-movement data at the lowest cost can reduce scan times and associated costs by 50%.

Terry Jernigan, University of California, San Diego

O.5.2. Overview of the ABCD Study

This presentation will provide an overview of the Adolescent Brain Cognitive Development (ABCD) Study focusing on its administrative and operational structure, the recruiting strategy and target cohort characteristics, and on the methods for assessing development, health, and behavioral characteristics of the participants. Plans for resource sharing with the wider research community will be described and opportunities for leveraging ABCD in future research will be highlighted.

Anders Dale, University of California, San Diego

O.5.3. Harmonized Human Connectome Protocols for the ABCD Study

The imaging protocols to be applied in the ABCD Study build on the Human Connectome Lifespan protocol and have been enhanced and harmonized across GE, Siemens, and Philips scanners. Specific enhancements include real-time motion estimation and correction, protocol compliance checking, and advanced diffusion MRI acquisitions and analysis methods. All raw- and derived data, along with associated computational analysis pipelines, will be freely shared with the research community.

Oral Session 6:
Parcellating the Human Brain Symposium

Discussant: **Steve Petersen**, Washington University in St Louis

Evan Gordon, VISN 17 Center of Excellence (VISN CoE)

O.6.1. Boundary-based parcellation of human cerebral cortex using functional connectivity MRI

The human cerebral cortex is organized into a large number of interacting cortical areas with discrete patterns of architectonics, connectivity, and function. Abrupt transitions in fMRI resting state functional connectivity patterns can noninvasively identify locations of putative borders between cortical areas. Here, we used this "boundary mapping" technique to generate and evaluate discrete cortical parcels in a group of healthy adults. Connectivity patterns of the resulting parcels were highly homogenous when compared to a permutation-based null model, and specific parcels conformed to known cytoarchtectonically-defined cortical areas. This boundary-based parcellation may thus represent a highly useful set of a priori ROIs.

David Van Essen, Washington University in St Louis

O.6.2. A multimodal parcellation of human cerebral cortex

Using multi-modal magnetic resonance images from the Human Connectome Project (HCP) and an objective semi-automated neuroanatomical approach, we delineated 180 areas per hemisphere bounded by sharp changes in cortical architecture, function, connectivity, and/or topography in a precisely aligned group average of 210 healthy young adults. The parcellation includes 97 new areas and 83 areas previously reported using specialized study-specific approaches. A machine-learning classifier trained to recognize the multi-modal 'fingerprint' of each cortical area enabled automated and reliable identification of these areas in new HCP subjects and could correctly locate areas in individuals with atypical parcellations. The parcellation and associated datasets are shared freely via the BALSA database.

Oral Session 7:
Large Scale Networks Symposium

Discussant: **Olaf Sporns**, University of Indiana

Martijn Van Den Heuvel, University Medical Center Utrecht, The Netherlands

O.7.1. Richness of the human brain network

Using network science as a general framework to study the network of connectivity our brain -the human connectome, more and more studies have highlighted the human brain to display features of an efficient communication network, showing cost-effective wiring, pronounced community structure, short communication relays, and the existence of richly connected 'hub regions'. In my talk, I will highlight and discuss recent findings of a 'rich club organization' of the human connectome, discussing the important role of a densely connected 'rich club' core in brain systems, suggesting the existence of a selective group of high-degree hub regions to form a densely connected backbone of neural connectivity in the brain; a system argued to be crucial for bringing integration among segregated brain systems. I will discuss a potential 'richness' of this club at different scales of brain organization and discuss the early emergence of the rich club in the neonatal brain. Furthermore, I will discuss findings of changes in connectome wiring and structure across brain development and the lifespan, as well as discuss how deviating growth of connectome and rich club organization may form an important factor in the aetiology of neurodevelopmental disorders, in particular brain disorders that are characterised by a disruption of integrative brain processes, such as schizophrenia.

Flux Congress Oral Presentations

Alex Fornito, Monash University, Australia

O.7.2. Genetic and developmental influences on large-scale brain networks

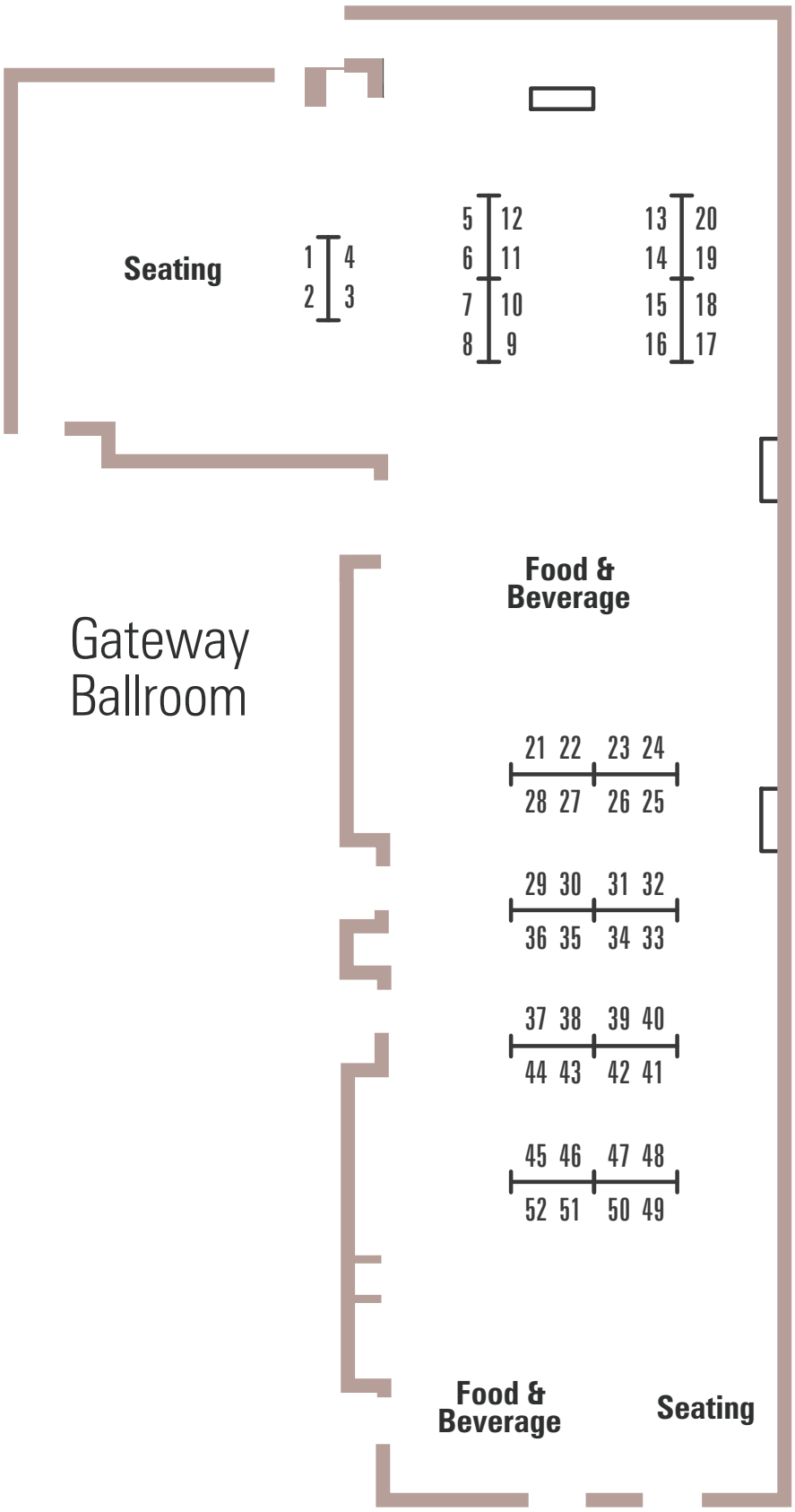
Some brain regions posses a large number of connections and act as network hubs. These hubs support the integration of distributed neural systems, but can also represent potential points of vulnerability in disease. This talk will present evidence to indicate that hubs are topologically central elements of brain networks that carry a high metabolic and physical cost. This cost defines the transcriptional signature of hub connections, and is a heritable property of hub connectivity. Although hub connectivity is established early in development, it continues to be remodeled throughout late adolescence, coinciding with a period of peak risk for many psychiatric disorders.

Danielle Bassett, University of Pennsylvania

O.7.3. Evolution of brain network dynamics in neurodevelopment

Cognitive function evolves significantly over development, enabling flexible control of human behavior. Yet, how these functions are instantiated in spatially distributed and dynamically interacting networks or graphs that change in structure from childhood to adolescence is far from understood. Here, we apply a novel machine learning method to track continuously overlapping and time-varying subgraphs in the brain at rest within a sample of 200 healthy youth (aged 8-11 and 19-22) drawn from the Philadelphia Neurodevelopmental Cohort. We uncover a set of subgraphs that capture surprisingly integrated and dynamically changing interactions among known cognitive systems. We observe that subgraphs that are highly expressed are especially transient, flexibly switching between high and low expression over time. This transience is particularly salient in a subgraph predominantly linking fronto-parietal regions of the executive system, which increases in both expression and flexibility from childhood to young adulthood. Collectively, these results suggest that healthy development is accompanied by a greater precedence of executive networks and a greater switching of the regions and interactions subserving these networks.

Flux Posters Floor Plan | Second Floor Convention Level



Flux Congress Poster Author Index

Poster Session 1
Thursday September 8 12:30–2:00 PM

Poster Session 2
Friday September 9 1:00–3:00 PM

Poster Session 3
Saturday September 10 12:15–1:45 PM

Poster board numbers are indicated as follows:
Poster Session – Theme – Board Number (Example: 2-A-10)

Location of the individual poster boards are indicated on poster board floor plans following the poster author index list. Poster set up and removal is the responsibility of the presenter. Please have your poster set up no later than 8:30 AM on your scheduled presentation day and removed by 5:15 PM each day. For those presenting on Saturday, please remove your poster by 2:00pm.

Any posters not removed by the designated time will be held at Registration until 3:00 PM on Saturday.

Themes

A Cognition
B Decision Making
C Functional/Structural Neuroanatomy
D Motivation/Affect
E Neurotransmitter Function
F Learning
G Clinical Populations

For a complete list of poster abstracts please visit **www.fluxsociety.org**

Author	Poster No.
Abi Akar, N	1-B-17
Abrams, D	2-D-36
Achterberg, M	2-D-35,3-D-44
Ackerman Jr., J	3-A-5
Adamson, C	1-C-30, 2-G-50, 3-C-20
Aite, A	1-A-1
Akbar, S	1-C-20
Alberti, S	1-B-15, 1-B-16, 1-D-43, 3-B-13,3-B-17
Alexander, B	3-C-20
Allen, N	3-C-31
Almy, B	2-B-13
Altman, N	3-C-25
Alves, M	1-C-31
Amso, D	1-F-46,2-D-39
Anbari, Z	2-C-32
Anderson, P	3-C-20,1-C-30
Anderson, V	1-G-51
Askren, K	3-G-51
Aslin, R	1-A-2
Aïte, A	3-D-43
B.Hatfield, J	1-C-29
Baez, N	3-C-25
Bajo Molina, M	3-C-22
Baker, A	2-D-36
Baker, E	1-G-49
Bakermans-Kranenburg, M	2-D-35
Ball, G	2-C-20
Banich, M	3-A-1
Barch, D	1-C-28, 1-D-37, 1-D-44, 1-G-50, 2-G-51, 3-D-41
Batalle, D	2-C-28
Baumgartner, H	1-F-46
Bayet, L	1-A-2
Beare, R	1-C-23, 1-C-30, 1-G-51, 2-G-50, 3-C-20, 3-C-31
Becker, S	3-A-10
Belden, A	1-D-44
Bellgrove, M	2-G-50
Berg, J	2-C-29
Berkman, E	2-D-41
Bernal, B	3-C-25
Bilo, E	3-D-44
Blankenship, S	2-C-21
Blankenstein, N	2-B-14, 2-D-44
Bolt, T	1-C-32
Bonnie, R	1-A-3
Borst, G	1-A-1, 1-D-35, 3-A-11, 3-D-43, 3-F-46
Botdorf, M	2-B-18
Bouhours, L	1-D-35
Braams, B	1-B-13, 2-D-44, 3-A-6
Bradley, C	3-C-25
Breheny, R	2-A-12
Breiner, K	1-A-3, 2-C-23
Broce, I	3-C-25
Brooks, W	2-C-26
Bruce, A	3-B-15
Bruce, J	3-B-15
Bryce, N	1-B-14
Bullins, J	1-C-20, 3-A-2
Bulthé, J	2-A-10
Bunge, S	2-A-5
Burkart, D	3-B-15
Burrows, C	3-D-42
Buss, C	2-C-30, 2-C-31, 3-C-21
Busso, D	1-D-36
Bustamente, C	1-A-6
Cabrera, L	3-C-25
Cadoret, G	1-A-11
Calabro, F	1-C-21, 1-C-27, 2-C-24, 2-G-52, 3-A-8
Caldera, C	3-D-45
Callaghan, B	1-F-48
Camacho, C	2-D-43
Camarda, A	1-D-35
Canada, K	2-A-1
Caouette, J	2-C-22
Carlson, S	2-C-26
Casey, B	1-A-3, 3-D-40
Cassotti, M	1-A-1, 1-D-35, 3-D-43
Cataldo, J	1-A-2
Cejudo Garcia, A	3-C-22
Chahal, R	3-C-23
Chang, T	1-A-4
Chein, J	1-A-3, 2-B-18, 2-C-23
Chen, J	1-C-30, 3-C-20
Cheng, T	1-B-15, 1-D-43
Cheong, J	1-C-30, 3-C-20
Cherry, B	3-B-15
Cherry, J	2-A-8
Choi, I	2-C-26
Chow, W	2-A-12
Chung, Y	3-G-49
Chung, Y	3-A-3
Church, J	1-A-12, 1-F-47, 2-A-4
Cicchetti, D	2-D-37, 3-C-28
Cichy, R	1-A-2
Cillessen, A	3-B-19
Cillessen, A	2-C-33
Clark, M	1-A-9
Coalson, R	2-C-29
Cohen, A	1-A-3
Cohen, S	3-C-24
Colich, N	1-D-39, 3-D-35
Colombo, J	2-C-26
Constable, R	3-C-24

Author	Poster No.
Cooper, D	2-C-30
Cosme, D	2-D-41
Courtier, P	3-A-11
Cowell, R	2-D-37
Cowell, R	3-C-28,1-C-25
Crespo, L	1-C-29
Crone, E	3-D-44,2-B-14
Crone, E	2-D-35, 2-D-44, 3-A-6
Cross, S	3-C-24
Custers, R	1-D-41
Cutting, L	3-A-1
Dajani, D	2-A-2, 3-D-42
Damasio, H	2-F-47
Dapretto, M	1-B-19
Darcey, V	1-C-22, 2-B-19
Davidow, J	1-A-6, 1-B-13, 3-D-36
De Feria, A	3-C-25
De Smedt, B	2-A-10
Dellarco, D	1-A-3
DeMaster, D	1-F-47
Demers, L	2-D-37
Demir, O	3-F-47
Dennison, M	1-A-10, 1-D-36, 2-C-25
Der Sarkissian, A	2-A-3
Deschner, L	1-A-12, 1-F-47
Dick, A	3-C-25
Dinakar, K	2-G-49
DiStefano, C	1-G-49
Do, K	3-B-12
Dosenbach, N	2-C-29, 3-G-50
Dougherty, L	2-C-21
Doyle, L	1-C-30, 3-C-20
Drazen, C	3-G-50
Drysdale, A	1-B-17
Dumontheil, I	1-D-41, 2-A-12
Durnin, M	3-B-17
Edwards, D	2-C-28
Efron, D	1-G-51
El Damaty, S	1-C-22, 2-B-19
Emberson, L	2-F-46
Engelhardt, L	2-A-4
Entringer, S	2-C-30, 2-C-31, 3-C-21
Epstein, J	3-A-10
Euser, S	2-D-35
Everett, E	3-G-50
Ezie, C	1-C-32
Fair, D	1-A-3, 2-C-31, 3-C-21
Falcone, G	3-B-18
Ferguson, H	2-A-12
Ferreira, T	1-C-31
Fettich, K	2-B-18, 2-C-23

Author	Poster No.
Fishbein, D	1-C-22, 2-B-19
Fisher, P	1-B-15, 1-B-16, 1-D-43, 3-B-17, 3-B-13
Flannery, J	1-B-15, 1-B-16, 1-D-43, 3-B-13, 3-B-17, 3-D-45
Flournoy, J	1-B-15, 1-D-43, 3-B-13, 3-B-17
Foran, W	1-A-5, 2-C-24, 2-D-42
Forbes, E	2-C-22, 2-C-34, 3-C-23, 3-C-26
Fournoy, J	1-B-16
Fowler, B	3-A-10
Franz, P	2-G-49, 3-D-40
Frithjof, K	2-C-30
Gabard-Durnam, L	3-D-42, 3-D-45
Galvan, A	1-A-3, 1-B-18, 1-C-34, 2-C-23, 3-B-14
Garrad, M	1-B-17, 3-D-37
Gee, D	3-D-45
Gee, D	3-D-42
Geier, C	3-D-39
Gelardi, K	2-D-45, 3-C-26
Genc, S	1-C-23
Geng, F	1-C-24, 2-A-1
Ghuman, A	1-A-5
Gibbs, A	3-C-28
Gilbert, K	1-D-37, 1-D-44
Gillis, A	3-C-26
Gilmore, A	2-C-29
Gilmore, J	1-C-20, 2-C-30, 3-A-2, 3-C-21
Glenn, C	3-D-37
Goff, B	3-D-45
Goldenberg, D	3-B-14,1-C-34
Goldin-Meadow, S	3-F-47
Goldman, B	3-A-2,1-C-20
Gonçalves, Ó	1-C-31
Gotlib, I	1-D-39, 2-D-43, 3-D-35
Grabell, A	1-D-38
Graham, A	2-C-31, 3-C-21
Greene, D	2-C-29, 3-C-30
Greenfield, P	1-B-19
Grimm, K	3-C-23
Guarino, K	3-A-9
Guassi Moreira, J	2-B-17, 2-D-38
Guerra-Carrillo, B	2-A-5
Gunnar, M	1-C-25
Guroglu, B	3-B-19
Gustafson, K	2-C-26
Guyer, A	2-C-22, 2-C-32, 2-C-34, 2-D-45, 3-C-23, 3-C-26
Ha, O	3-B-15

Author	Poster No.
Habibi, A	2-A-3, 2-F-47, 3-C-32
Hajcak, G	3-D-38
Harden, K	2-A-4
Hartley, C	1-B-14
Hastings, P	2-C-32, 2-D-45
Hawkey, E	1-G-50
Hawks, Z	3-C-27
Hay, J	1-D-35
Hazell, P	1-G-51
Hect, J	3-A-7, 3-C-33
Heim, C	3-C-21
Heller, A	1-C-32
Hernandez, G	3-C-25
Hernandez, L	1-B-19
Hershey, T	3-C-29
Herzberg, M	1-C-25
Herzmann, C	1-C-26
Hippwell, A	2-C-34
Hipwell, A	2-C-22, 3-C-26, 3-C-23
Hodel, A	1-C-25
Holland, S	1-C-23
Honea, R	2-C-26
Hood, A	3-C-27
Hoppe, M	3-A-11
Hosseini-Kamkar, N	3-B-16
Houde, O	1-A-1
Houdé, O	1-D-35, 3-A-11, 3-D-43, 3-F-46
Hoyt-Drazen, C	2-C-29
Huettel, S	3-A-6
Humphreys, K	3-D-35, 3-D-45
Hunt, R	1-C-25, 2-D-37, 3-C-28
Huppert, T	1-D-38, 2-A-9
Hyatt, C	3-A-3
Hyde, D	2-A-6
Icenogle, G	2-C-23
Infantolino, Z	3-D-38
Insel, C	1-B-17,3-A-4,3-D-40,3-D-37
Iuculano, T	1-A-4,2-F-48
Jalbrzikowski, M	2-C-24
Jedd McKenzie, K	2-D-37, 3-C-28
Jenness, J	1-A-10, 1-D-36, 2-C-25
Jeste, S	1-G-49
Jha, S	1-C-20
Johnson, K	3-C-31
Juranek, J	1-F-47
Kang, J	2-A-5
Kaplan, J	3-C-32
Kastman, E	3-A-4, 3-D-37
Keenan, K	2-C-22, 2-C-34, 3-C-23
Kelly, C	1-C-30, 3-C-20

Flux Poster Author Index | By Author Name

Author	Poster No.
Kelly, C	3-A-10
Kenley, J	1-C-26, 1-C-33, 3-A-5
Kennan, K	3-C-26
Kennea, N	2-C-28
Kersey, A	2-F-46
Kim, H	1-D-45
King, L	1-D-39, 3-D-35
Knickmeyer, R	3-A-2
Kober, H	3-B-18
Koller, J	2-C-29, 3-G-50
Kuskowski, M	2-B-13
Kwon, S	3-C-24
Lacadie, C	3-C-24
Lambert, H	1-D-42, 3-G-51
Larsen, B	1-C-27, 2-C-24
Laube, C	2-B-15
Laumann, T	2-C-29
Lean, R	3-A-5
Lee, P	2-C-26
Lee, T	1-D-40
Leemans, A	1-C-30
Leibenluft, E	2-G-51
Lemoult, J	1-D-39
Leopold, D	3-A-1
Lepping, R	2-C-26
Lerman-Sinkoff, D	3-C-27
Levine, S	3-F-47
Lewkowicz, D	1-F-46
Li, A	1-A-3
Li, G	1-C-20
Li, R	3-A-6
Liao, K	2-C-26
Lim, S	3-B-15
Linzarini, A	1-A-1
Lisboa, I	1-C-31
Llabre, M	2-A-2
Loh, W	1-C-30, 3-C-20
Lopez, K	1-C-28
Lorenz, R	2-B-15
Louie, J	3-D-45
Luby, J	1-C-28, 1-D-37, 1-D-44, 1-G-50,2-G-51, 3-D-41
Luciana, M	2-B-13
Luking, K	1-D-37, 3-D-38
Luna, B	1-A-5, 1-C-27, 1-C-21, 2-C-24,2-D-42, 2-G-52, 3-A-8
Lydon, D	3-D-39
Lynn, A	2-D-39
MacGillivray, C	2-A-9
Machlin, L	3-G-52,2-C-27
Mackey, E	2-A-8
Magis-Weinberg, L	1-D-41
Magnotta, V	1-G-52
Malone, S	2-B-13
Maloney, T	3-A-10
Malpas, C	1-C-23, 1-G-51, 2-G-50
Manning, J	3-A-7, 3-C-33
Marek, S	1-A-5
Marin, A	1-G-49
Marshall, N	1-C-29, 3-A-7, 3-C-33
Martin, K	1-C-22, 2-B-19
Martin, L	2-C-26
Martin, R	3-D-40
Martinez, J	1-A-12
Marusak, H	1-C-29
Mattarella-Micke, A	2-A-7
Matthews, L	3-C-20,1-C-30
McBride, J	1-A-12
McCandliss, B	2-A-7
McCormick, E	2-B-16
McCormick, E	3-B-12
McDermott, K	2-C-29
McKay, E	3-C-28
McLaughlin, K	1-A-10, 1-D-42, 1-D-36, 2-C-25, 2-D-40, 2-C-27, 3-G-51
Melnik, J	3-A-11
Menon, V	1-A-4,2-D-36,3-F-48,2-F-48
Ment, L	3-C-24
Metcalfe, A	1-A-4
Metzger, A	1-G-52
Meyer, K	1-A-6
Miernicki, M	1-D-40
Miguel, H	1-C-31
Miles, Z	1-A-10
Miller, A	2-D-40
Minhas, D	1-C-27
Mischel, W	3-D-40
Mitsven, S	2-F-48
Mobasser, A	1-B-15, 1-B-16, 1-D-43, 2-D-41, 3-B-13, 3-B-17
Montagna, A	2-C-28
Montez, D	2-D-42, 3-A-8
Moraczewski, D	1-A-7
Morton, J	3-B-16
Mostofsky, S	2-A-2
Mulligan, E	1-A-9, 1-C-24
Murphy, E	3-D-41
Murphy, M	2-A-9
Murray, A	3-C-20
Murty, V	1-C-21, 2-D-42
Myers, E	2-B-13
Nadler, E	2-A-8
Nebel, M	2-A-2
Nelson, B	3-D-38
Nelson, C	1-A-2
Nelson, S	2-C-29
Neyman, O	3-C-29
Nguyen, A	2-C-29, 3-G-50
Nicholas, J	3-F-48
Nicholson, J	1-G-51
Niebaum, J	1-A-8
Nielsen, A	3-C-30
Niermann, H	2-C-33
Nock, M	2-G-49
Nomi, J	1-C-32
Nook, E	1-D-42, 2-G-49
Nopoulos, P	1-G-52
Nosarti, C	2-C-28
O'Muircheartaigh, J	2-C-28
O'Sullivan, K	1-F-48
Ochsner, K	3-D-40
Odriozola, P	2-A-2,3-D-42,2-D-36
Olafsson, V	1-C-27
Olson, A	2-A-8
Op de Beeck, H	2-A-10
Op de Macks, Z	3-B-17
Ordaz, S	2-D-43, 3-D-35
Ortega Segura, A	3-C-22
Ortega, M	2-C-29
Osmont, A	1-A-1, 1-D-35
Padmanabhan, A	2-D-36
Pagliaccio, D	1-D-37, 2-G-51
Paquet, A	1-A-11
Patrianakos, J	2-B-18
Peake, S	1-B-15, 1-B-16, 1-D-43, 3-B-13, 3-B-17
Pearce, A	2-A-8
Peper, J	2-B-14, 2-D-44
Perino, M	2-B-17
Perlman, S	1-D-38, 2-A-9
Peters, C	1-C-29
Peters, L	2-A-10
Peters, S	3-A-6
Petersen, S	3-C-30,2-C-29
Petrill, S	3-A-1
Peverill, M	1-D-36,2-D-40
Pfeifer, J	1-B-16, 1-B-15, 1-D-43, 2-D-41, 3-B-13, 3-B-17,
Phuong, J	1-B-18
Pine, D	2-G-51
Popolizio, M	2-D-43
Powels, L	2-C-33

Author	Poster No.
Powers, A	3-D-40
Powers, K	3-B-18
Preston, A	3-A-9
Price, A	2-D-43
Price, J	1-C-27
Pruitt, S	3-B-15
Pruitt, Z	1-A-2
Ragan, D	3-G-50
Rasmussen, J	2-C-30, 2-C-31, 3-C-21,
Redcay, E	1-A-7
Rees, S	3-C-20
Reineberg, A	3-A-1
Richeson, J	1-A-3
Richmond, S	3-C-31
Riggins, T	1-A-9,1-C-24,2-A-1,2-C-21
Roberts, N	2-A-11
Robins, R	2-D-45
Rodman, A	3-A-4
Roe, M	1-F-47
Roelofs, K	2-C-33
Rogers, C	1-C-26, 1-C-33, 3-A-5
Rogosch, F	2-D-37, 3-C-28
Rose, E	1-C-22, 2-B-19
Rosen, M	1-A-10, 1-D-36, 2-C-25, 3-G-51
Rosenbaum, G	2-B-18
Rudolph, M	1-A-3, 2-C-31, 3-C-21
Rutherford, M	2-C-28
Rutlin, J	3-C-27
Sachs, M	3-C-32
Sala-Hamrick, K	1-C-29
Sambrook, K	1-A-10, 2-C-25, 3-G-51
Sampaio, A	1-C-31
Sasse, S	1-B-17, 1-D-42, 3-D-37, 3-A-4
Sauder, C	3-D-38
Savvatia Asaridou, S	3-F-47
Scheinost, D	3-C-24
Schlaggar, B	2-C-29, 3-C-30
Schlichting, M	3-A-9
Schreuders, L	3-B-19
Schriber, R	2-C-32
Sciberras, E	1-G-51
Scott, E	1-A-3
Seal, M	1-C-30, 3-C-20,3-C-31
Shapiro, M	3-D-45
Shen, D	1-C-20
Sheridan, M	1-A-6, 1-D-36, 1-A-10, 2-C-25, 2-C-27, 2-D-40, 3-D-36, 3-G-52, 3-G-51
Sherman, L	1-B-19
Shi, T	1-B-14
Shimony, J	1-C-26, 2-C-29, 3-C-29, 3-C-34, 3-A-5, 3-C-27
Short, S	1-C-20, 3-A-2
Silk, T	1-C-23, 1-G-51, 2-G-50
Silvers, J	1-F-48, 3-D-40
Simard, F	1-A-11
Simmonds, D	2-C-24
Skwara, A	3-A-4
Small, S	3-F-47
Smeekens, S	3-B-19,2-C-33
Smith, A	2-B-18
Smith, T	3-B-15
Smyser, C	3-A-5
Smyser, C	1-C-26, 1-C-33
Smyser, T	1-C-26, 1-C-33, 3-A-5
Snyder, A	3-C-29,1-C-26
Snyder, J	3-G-52,3-D-36,1-A-6
Somerville, L	1-A-6, 1-B-13, 1-B-17, 1-D-42, 3-A-4, 3-B-18, 3-D-36, 3-D-37
Spittle, A	3-C-20,1-C-30
Steinbeis, N	3-D-44
Steinberg, L	2-C-23,2-B-18,1-A-3
Stephano, T	3-D-40
Stevens, M	3-A-3
Strang, N	2-B-18
Styner, M	3-A-2,3-C-21,1-C-20,2-C-30
Supekar, K	3-F-48
Sylvester, C	1-C-33
Symeonidou, I	2-A-12
Sze, G	3-C-24
Tamm, L	3-A-10
Tashjian, S	3-B-14,1-C-34
Taylor-Thompson, K	1-A-3
Telzer, E	1-D-40, 2-B-17, 2-D-38, 2-B-16, 3-B-12, 3-D-45
Tereshchenko, A	1-G-52
Tervo-Clemmens, B	2-G-52
Thomas, K	1-C-25, 2-D-37, 3-C-28
Thomason, M	3-C-33,1-C-29,3-A-7
Thompson, D	3-C-20,1-C-30
Thompson, L	3-A-1
Toni, I	2-C-33
Toth, S	2-D-37, 3-C-28
Tottenham, N	1-F-48, 3-D-42, 3-D-45
Tucker-Drob, E	2-A-4
Tyborowska, A	2-C-33
Uddin, L	1-C-32, 2-A-2, 3-D-42
Utevsky, A	3-A-6
Vaidya, C	2-A-8
van den Bos, W	2-B-15
van den Heuvel, M	3-A-7, 3-C-33
van der Meulen, M	2-D-35,3-D-44
Van Dijk, K	3-D-36
van Duijvenvoorde, A	2-B-14, 2-D-35, 3-A-6,
van IJzendoorn, M	3-D-44
Van Tieghem, M	1-F-48
Vance, A	2-G-50
VanMeter, J	1-C-22, 2-B-19
VanTieghem, M	3-D-45
Viarouge, A	3-A-11
Vidal, C	3-D-36
Vijayakumar, N	1-B-15,1-D-43
Vilgis, V	2-C-34, 2-G-50, 3-C-26, 3-C-23
Volman, I	2-C-33
Wadhwa, P	2-C-30, 2-C-31, 3-C-21
Wang, K	3-A-1
Warfield, S	3-C-20
Weissman, D	2-D-45
Werchan, D	1-F-46
Wesonga, E	3-C-34
Whalen, D	1-D-44
White, D	3-C-27, 3-C-34
Whittle, S	3-C-31
Widness, J	1-G-52
Willcutt, E	3-A-1
Wilson, R	1-B-17
Yaffe, G	3-B-18
Yoon, L	1-D-45
Zehra, A	1-A-9
Zheng, A	1-A-12
Zopp, J	1-C-20

Poster Session 1

Thursday September 8, 2016

1-A-1 Adolescents' inhibitory control: Keep it cool or lose control

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1-A-2 Time-resolved EEG predicts classification of words and pictures in the infant brain

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1-A-3 The "triple threat": influence of peers, excitement, and reward on cognitive control capacity in adolescents

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1-A-4 Indistinct neural representations for addition and subtraction problems in the posterior parietal cortex predict arithmetic scores in primary school children with mathematical learning disabilities

Teresa Iuculano[1], Ting-Ting Chang[2], Arron Metcalfe[1], Vinod Menon[1]

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1-A-5 Developmental increases in cortical resting-state variability

Scott Marek[1], William Foran[1], Avniel Ghuman[1], Beatriz Luna[1]

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1-A-6 The relationship between cognitive control over reward and risk-taking is explained by age

Kristin Meyer[1], Juliet Davidow[2], Constanza Bustamente[2], Jenna Snyder[1], Leah Somerville[2], Margaret Sheridan[1]

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1-A-7 Modulation of the default mode network during naturalistic viewing - a developmental study

Dustin Moraczewski[1], Elizabeth Redcay[1]

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1-A-8 Adaptive control and the avoidance of cognitive demand across development

Jesse Niebaum[1]

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1-A-9 Relations between source memory and hippocampal volume in early childhood

Tracy Riggins[1], Amna Zehra[1], Marissa Clark[1], Elizabeth Mulligan[1]

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1-A-10 Neural mechanisms underlying working memory for emotional faces across development

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1-A-11 Event-related oscillations and memory retrieval in the developing brain

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1-A-12 Eye movements relate to developmental differences in cued task switching performance

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1-B-13 Social influence on adolescent ambiguous and risky decision-making

Barbara Braams[1], Juliet Davidow[1], Leah Somerville[1]

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1-B-14 Cognitive components underpinning the development of model-based learning

Nessa Bryce[1], Tracey Shi[1], Catherine Hartley [1]

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1-B-15 Brain-behavior relationships between social exclusion or over-inclusion and subsequent decision-making in adolescents

Theresa Cheng[1], Nandita Vijayakumar[1], Shannon Peake[1], John Flournoy[1], Jessica Flannery[1], Arian Mobasser[1], Sarah Alberti[1], Philip Fisher[1], Jennifer Pfeifer[1]

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1-B-16 Social context as a moderator of neural responses to outcomes of risk decisions across community and foster care adolescents

Jessica Flannery[1], Shannon Peake[1], John Fournoy[1], Sarah Alberti[1], Arian Mobasser[1], Philip Fisher[1], Jennifer Pfeifer[1]

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1-B-17 Exploratory decision making becomes more strategic through adolescence

Megan Garrad[1], Stephanie Sasse[1], Andrew Drysdale[2], Nadine Abi Akar[1], Catherine Insel[1], Robert Wilson[3], Leah Somerville[1]

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1-B-18 The neurobiological effects of daily stress on risky decision-making in adolescents

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1-B-19 Social media and the social brain: associations between real-world risk-taking and neural responses to Instagram photographs

Lauren Sherman[1], Leanna Hernandez[1], Patricia Greenfield[1], Mirella Dapretto[1]

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1-C-20 Early brain development predicts deficits in attention and working memory at school entry

Saima Akbar[1], Martin Styner[1], Barbara Goldman[1], Gang Li[1], Jessica Bullins[1], Shaili Jha[1], Jared Zopp[1], Dinggang Shen[1], John Gilmore[1], Sarah Short[1]

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1-C-21 Development of hippocampal-prefrontal cortex interactions through adolescence

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1-C-22 Under-connectivity between executive networks and cerebellum predicts later development of a pro-violent disposition in adolescents

Shady El Damaty[1], Kelly Martin[1], Valerie Darcey[1], Emma Rose[2], Diana Fishbein[2], John VanMeter[1]

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1-C-23 Neurite density index is sensitive to age related differences in the developing brain

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1-C-24 Developmental differences in hippocampal contribution to episodic memory in 4- to 8-year-old children

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1-C-25 Risk taking, impulsivity, and brain volume in a sample of post-institutionalized youth

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1-C-26 Neonatal cerebellar functional connectivity and early childhood neurodevelopmental outcomes

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1-C-27 Tissue-iron as a non-invasive indicator of striatal dopamine system neuroanatomy during adolescence

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1-C-28 Early emotion dysregulation predicts subsequent connectivity abnormalities in children with Major Depressive Disorder (MDD)

Katherine Lopez[1], Joan Luby[1], Deanna Barch[1]

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1-C-29 Diminished connectivity of corticostriatal reward pathways in socioeconomically disadvantaged youth

Narcis Marshall[1], Hilary Marusak[2], Joshua B.Hatfield[3], Craig Peters[2], Kelsey Sala-Hamrick[3], Laura Crespo[3], Moriah Thomason[4]

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1-C-30 Multimodal investigation of the preterm neonatal cerebellum: a combined volumetric and fibre tractography MRI study

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1-C-31 Brain mechanisms for processing discriminative and affective touch in 7 month-old infants

Helga Miguel[1], Isabel Lisboa[1], Marta Alves[1], Tiago Ferreira[1], Óscar Gonçalves[1], Adriana Sampaio[1]

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1-C-32 Moment-to-moment BOLD signal variability reflects functional specialization across development

Jason Nomi[1], Taylor Bolt[1], Chiemeka Ezie[1], Lucina Uddin[1], Aaron Heller[1]

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1-C-33 Neonatal functional connectivity predicts behavioral inhibition at age 2 years

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1-C-34 Sleep deficiency and default mode network connectivity in adolescents

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1-D-35 How social pressure influences hot and cool inhibitory control in adolescence?

Lison Bouhours[1], Anaëlle Camarda[1], Anaïs Osmont[1], Julien Hay[1], Olivier Houdé[1], Grégoire Borst[1], Mathieu Cassotti[1]

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1-D-36 Enhanced reward system reactivity buffers risk for depression in adolescents exposed to maltreatment

Meg Dennison[1], Margaret Sheridan[2], Daniel Busso[3], Jessica Jenness[1], Matthew Peverill[1], Maya Rosen[1], Katie McLaughlin[1]

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1-D-37 Positive affect regulation relates to neural response in children: the case of dampening

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1-D-38 Neural correlates of deliberate emotion regulation in early childhood.

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1-D-39 A pubertal shift in the relation between diurnal cortisol and nucleus accumbens activation during anticipation of reward and punishment

Lucy King[1], Natalie Colich[1], Joelle Lemoult[1], Ian Gotlib[1]

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1-D-40 Resting-state connectome similarity in mother-child dyads and its impact on emotional synchrony

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1-D-41 Enhancement of cognitive control in rewarding contexts in adolescence and adulthood

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1-D-42 Emotion concepts become more distinct across development but the ability to specifically identify one's emotions is low in adolescence

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1-D-43 Feeling left out or violated social expectations? An fMRI adaptation of Cyberball using parametric modulators

Nandita Vijayakumar[1], Theresa Cheng[1], Shannon Peake[1], John Flournoy[1], Jessica Flannery[1], Arian Mobasser[1], Sarah Alberti[1], Phil Fisher[1], Jennifer Pfeifer[1]

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1-D-44 Preschool physical activity influences activation in emotion regulation brain regions at school age

Diana Whalen[1], Kirsten Gilbert[1], Andy Belden[1], Joan Luby[1], Deanna Barch[1]

[1]Washington University in St. Louis

1-D-45 Development of Neural Sociometer: Role of DLPFC in tracking accumulated social feedbacks and biasing social evaluative decision

Leehyun Yoon[1], Hackjin Kim[1]

[1]Korea University

1-F-46 Cortical plasticity and specialization in response to multimodal events in infancy

Heidi Baumgartner[1], Denise Werchan[1], David Lewkowicz[2], Dima Amso[1]

[1]Brown University, [2]Northeastern University

1-F-47 Neural Correlates of Reading Improvement in Struggling Readers

Mary Abbe Roe[1], Lauren Deschner[1], Dana DeMaster[2], Jenifer Juranek[2], Jessica Church[1]

[1]University of Texas at Austin, [2]University of Texas Health Science Center at Houston

1-F-48 Transgenerational transmission of learned fears via observational conditioning

Jennifer Silvers[1], Bridget Callaghan[2], Kaitlin O'Sullivan[2], Michelle Van Tieghem[2], Nim Tottenham[2]

[1]UCLA, [2]Columbia University

1-G-49 ERP Evidence of semantic processing in children with ASD

Charlotte DiStefano[1], Elizabeth Baker[1], Andrew Marin[1], Shafali Jeste[1]

[1]University of California, Los Angeles

1-G-50 Preschool executive function deficits: Prediction of school-age ADHD and MDD outcomes and resting state network connectivity.

Elizabeth Hawkey[1], Joan Luby[1], Deanna Barch[1]

[1]Washington University in St. Louis

1-G-51 Examining the symptomology network of ADHD: A new way to view ADHD symptoms.

Tim Silk[1], Charles Malpas[1], Richard Beare[1], Vicki Anderson[2], Daryl Efron[2], Philip Hazell[3], Jan Nicholson[4], Emma Sciberras[5]

[1]Murdoch Childrens Research Institute, [2]Royal Children's Hospital, [3]University of Sydney, [4]Latrobe University, [5]Deakin University

1-G-52 Brain structure in premature infants: liberal vs. restricted red blood cell transfusions

Alexander Tereshchenko[1], Andrew Metzger[1], Vincent Magnotta[1], John Widness[1], Peg Nopoulos[1]

[1]University of Iowa

Poster Session 2

Friday September 9, 2016

2-A-1 Electrophysiological correlates of intentional source memory retrieval in early childhood

Kelsey Canada[1], Fengji Geng[1], Tracy Riggins[1]

[1]University of Maryland

2-A-2 Compromised integrity of executive control and salience networks reflects heterogeneous executive function ability in ASD and ADHD

Dina Dajani[1], Paola Odriozola[1], Mary Beth Nebel[2], Maria Llabre[1], Stewart Mostofsky[2], Lucina Uddin[1]

[1]University of Miami, [2]Kennedy Krieger Institute

2-A-3 Childhood music training, executive function and self-regulation

Alissa Der Sarkissian[1], Assal Habibi[1]

[1]USC Brain & Creativity Institute

2-A-4 Comparing child task performance in and out of the scanner

Laura Engelhardt[1], K. Paige Harden[1], Elliot Tucker-Drob[1], Jessica Church[1]

[1]The University of Texas at Austin

2-A-5 Gaze patterns provide insights about the malleability of reasoning skills

Julia Kang[1], Belen Guerra-Carrillo[1], Silvia Bunge[1]

[1]UC Berkeley

2-A-6 Functional brain organization for theory of mind in infants

Daniel Hyde[1]

[1]University of Illinois at Urbana-Champaign

2-A-7 Flexible Number Representations Underlie Children's Math Achievement

Andrew Mattarella-Micke[1], Bruce McCandliss[1]

[1]Stanford

2-A-8 reduced neural engagement during working memory in pediatric obesity

Alaina Pearce[1], J. Bradley Cherry[1], Alex Olson[1], Eleanor Mackey[2], Evan Nadler[2], Chandan Vaidya[1]

[1]Georgetown University, [2]Children's National Medical Center

2-A-9 Interpersonal neural synchronization as a biological mechanism for shared intentionality in adults and children

Susan Perlman[1], Caroline MacGillivray[2], Meghan Murphy[1], Theodore Huppert[1]

[1]University of Pittsburgh, [2]National Institute of Mental Health

2-A-10 The neural differences and similarities between children with and without learning disorders during arithmetic

Lien Peters[1], Jessica Bulthé[1], Hans Op de Beeck[1], Bert De Smedt[1]

[1]KU Leuven

2-A-11 A Hierarchical extension of the LATER model to examine differences in inhibitory control by development, reward type, and weight status

Nicole Roberts[1]

[1]The Pennsylvania State University

2-A-12 The time-course of Theory of Mind processes during adolescence: an eye tracking study

Irene Symeonidou[1], Heather Ferguson[2], Iroise Dumontheil[3], Wing Yee Chow[1], Richard Breheny[1]

[1]UCL , [2]University of Kent, [3]Birkbeck, University of London

2-B-13 A longitudinal analysis of the Iowa Gambling Task

Brandon Almy[1], Michael Kuskowski[1], Steve Malone[1], Evan Myers[1], Monica Luciana[1]

[1]University of Minnesota - Twin Cities

2-B-14 The neural correlates of risk and ambiguity processing in adolescent risky choice

Neeltje Blankenstein[1], Eveline Crone[1], Jiska Peper[1], Anna Van Duijvenvoorde[1]

[1]Leiden University

2-B-15 I want it now! The role of pubertal testosterone in impatience of adolescent boys

Corinna Laube[1], Robert Lorenz[1], Wouter van den Bos[1]

[1]Max Planck Institute for Human Development

2-B-16 Two roads diverge: context-specific outcomes associated with decreased neural sensitivity to negative feedback during adolescence.

Ethan McCormick[1], Eva Telzer[1]

[1]University of Illinois

2-B-17 Different strokes: How social context differentially influences inhibitory failures in normative and high-risk adolescents.

Michael Perino[1], João Guassi-Moreira[1], Eva Telzer[1]

[1]University of Illinois at Urbana-Champaign

2-B-18 The behavioral and neural influences of alcohol and social context on risky choice

Gail Rosenbaum[1], Morgan Botdorf[1], Ashley Smith[2], Karla Fettich[1], Jamie Patrianakos[1], Nicole Strang, Laurence Steinberg[1], Jason Chein[1]

[1]Temple University, [2]National Institute of Mental Health

2-B-19 Adolescent substance use predicted by pre-use differences in effective connectivity

John VanMeter[1], Shady El Damaty[1], Kelly Martin[1], Valerie Darcey[1], Emma Rose[2], Diana Fishbein[2]

[1]Georgetown University, Center for Functional and Molecular Imaging, [2]Pennsylvania State University

2-C-20 Machine learning to predict brain maturation in ASD: the ABIDE cohort

Gareth Ball[1]

[1]Murdoch Childrens Research Institute

2-C-21 Longitudinal associations between early parenting and child cortisol reactivity on hippocampal volume during childhood

Sarah Blankenship[1], Tracy Riggins[1], Lea Dougherty[1]

[1]University of Maryland

2-C-22 Neural correlates of social evaluation and depression risk in adolescent girls

Justin Caouette[1], Alison Hipwell[2], Kate Keenan[3], Erika Forbes[2], Amanda Guyer[4]

[1]Oregon Health & Science University, [2]University of Pittsburgh, [3]University of Chicago, [4]University of California - Davis

2-C-23 Cortical thickness of prefrontal regions is related to sensation seeking in adults but not adolescents

Grace Icenogle[1], Karla Fettich[1], Laurence Steinberg[1], Kaitlyn Breiner[2], Adriana Galvan[2], Jason Chein[1]

[1]Temple University, [2]University of California Los Angeles

2-C-24 The development of white matter microstructure and intrinsic functional connectivity between the amygdala and ventromedial prefrontal cortex

Maria Jalbrzikowski[1], Bart Larsen[1], William Foran[1], Daniel Simmonds[1], Finnegan Calabro[1], Beatriz Luna[1]

[1]University of Pittsburgh

2-C-25 Childhood violence exposure and neural systems underlying emotional working memory

Jessica Jenness[1], Maya Rosen[1], Meg Dennison[1], Margaret Sheridan[2], Kelly Sambrook[1], Katie McLaughlin[1]

[1]University of Washington, [2]University of North Carolina-Chapel Hill

2-C-26 Long-term effects of LCPUFA supplementation in the first year of life: A multimodal neuroimaging study at age 9

Rebecca Lepping[1], Kathleen Gustafson[1], Laura Martin[1], Ke Liao[1], In-Young Choi[1], Phil Lee[1], Robyn Honea[1], William Brooks[1], Susan Carlson[1], John Colombo[2]

[1]University of Kansas Medical Center, [2]University of Kansas

2-C-27 Brain structure mediates the relationship between low socioeconomic status and ADHD symptoms

Laura Machlin[1], Katie McLaughlin[2], Margaret Sheridan[1]

[1]University of North Carolina at Chapel Hill, [2]University of Washington

2-C-28 Neonatal brain alterations associated with short term memory at 4 years in children born very preterm.

Anita Montagna[1], Dafnis Batalle[1], Jonathan O'Muircheartaigh[1], Nigel Kennea[2], Mary Rutherford[1], David Edwards[1], Chiara Nosarti[1]

[1]King's College London, [2]St Georges University of London

2-C-29 Understanding successful neuroplasticity through high-fidelity imaging of individual perinatal stroke survivors

Mario Ortega[1], Timothy Laumann[1], Catherine Hoyt-Drazen[1], Annie Nguyen[1], Rebecca Coalson[1], Jonathan Koller[1], Joshua Shimony[1], Deanna Greene[1], Jeffrey Berg[2], Adrian Gilmore[1], Kathleen McDermott[1], Steven Nelson[3], Steven Petersen[1], Bradley Schlaggar[1], Nico Do

[1]Washington University in St. Louis School of Medicine, [2]Washington University in St. Louis , [3]Department of Veterans Affairs, University of Texas

2-C-30 Newborn insula gray matter volume is prospectively associated with early life fat gain

Jerod Rasmussen[1], Sonja Entringer[2], Kruggel Frithjof[1], Dan Cooper[1], Martin Styner[3], John Gilmore[3], Pathik Wadhwa[1], Claudia Buss[2]

[1]Univ. of California, Irvine, [2]The Charité ? Universitätsmedizin Berlin, [3]University of North Carolina at Chapel Hill

2-C-31 Within-network newborn functional connectivity is associated with maternal Interleukin-6

Marc Rudolph[1], Alice Graham[1], Claudia Buss[2], Jerod Rasmussen[3], Sonja Entringer[2], Pathik Wadhwa[4], Damien Fair[1]

[1]Oregon Health & Science University, [2]Charité University of Medicine and University of California, Irvine, [3]University of California, Irvine, School of Medicine , [4]University of California, Irvine

2-C-32 Hippocampal volume and sensitivity to social context in the emergence of depression in adolescence

Roberta Schriber[1], Zainab Anbari[2], Paul Hastings[1], Amanda Guyer[1]

[1]University of California, Davis, [2]Georgetown University

2-C-33 Gray matter maturation is differentially influenced by early-life and pubertal stressful experiences – a prospective longitudinal study

Anna Tyborowska[1], Inge Volman[2], Hannah Niermann[1], Loes Powels[1], Sanny Smeekens[3], Antonius Cillessen[1], Ivan Toni[1], Karin Roelofs[1]

[1]Radboud University Nijmegen, [2]Institute of Neurology, University College London, [3]Open University of the Netherlands

2-C-34 Affective disorder symptoms during childhood, early- and mid-adolescence are differentially associated with subcortical volumes in later adolescence among females

Veronika Vilgis[1], Erika Forbes, Alison Hippwell[1], Kate Keenan[1], Amanda Guyer[1]

[1]UC Davis

2-D-35 A new experimental paradigm to examine social evaluation and aggression regulation in 7-10-year-old children: A pilot, test and replication study

Michelle Achterberg[1], Anna van Duijvenvoorde[1], Mara van der Meulen[1], Saskia Euser[1], Marian Bakermans-Kranenburg[1], Eveline Crone[1]

[1]Leiden University

2-D-36 Social reward and voice processing systems during cross-sectional development

Amanda Baker[1], Daniel Abrams[1], Aarthi Padmanabhan[1], Paola Odriozola[1], Vinod Menon[1]

[1]Stanford University School of Medicine

2-D-37 Associations between resilience and frontal-limbic brain function during an emotional face task in adults with and without a history of childhood maltreatment

Lauren Demers[1], Kelly Jedd McKenzie[1], Ruskin Hunt[1], Dante Cicchetti[1], Raquel Cowell[2], Fred Rogosch[3], Sheree Toth[3], Kathleen Thomas[1]

[1]University of Minnesota, [2]St. Norbert College, [3]University of Rochester

2-D-38 Tracking longitudinal changes of maternal influence on adolescent neurocognition during risk-taking

Joao Guassi Moreira[1], Eva Telzer[1]

[1]University of Illinois, Urbana Champaign

2-D-39 Valence modulates visual perceptual discrimination: Evidence from the other-species effect

Andrew Lynn[1], Dima Amso[1]

[1]Brown University

2-D-40 A preliminary fMRI study of emotion regulation as a predictor of suicidal ideation

Adam Miller[1], Katie McLaughlin [2], Matthew Peverill[2], Margaret Sheridan[1]

[1]University of North Carolina at Chapel Hill, [2]University of Washington

2-D-42 Context-dependent trajectories of mesolimbic network connectivity throughout adolescent neurodevelopment.

Vishnu Murty[1], David Montez[1], Will Foran[1], Bea Luna[1]

[1]University of Pittsburgh

2-D-43 Perceived parental criticism influences salience network coherence in early-pubertal girls

Sarah Ordaz[1], Morgan Popolizio[1], Alexandra Price[1], Catalina Camacho[1], Ian Gotlib[1]

[1]Stanford University

2-D-44 The multidimensional construct of impulsivity and its longitudinal relation to testosterone across development: A factor analysis

Jiska Peper[1], Neeltje Blankenstein[1], Barbara Braams[2], Eveline Crone[1]

[1]Leiden University, [2]Harvard University

2-D-45 Community crime exposure, neural response to sad faces, and adolescent externalizing problems

David Weissman[1], Amanda Guyer[1], Kristina Gelardi[1], Paul Hastings[1], Richard Robins[1]

[1]University of California Davis

2-F-46 Tracing trajectories of audio-visual learning in the infant brain

Lauren Emberson[1], Alyssa Kersey[2]

[1]Princeton University, [2]University of Rochester

2-F-47 Neural correlates of auditory and language development in children engaged in music training

Assal Habibi[1], Hanna Damasio[1]

[1]University of Southern California

2-F-48 4-weeks of numerical training improves arithmetic performance and increases neural modulation in children with mathematical learning disabilities

Samantha Mitsven[1], Teresa Iuculano[1], Vinod Menon[1]

[1]Stanford University School of Medicine

2-G-49 Psychological distance and cognitive coping styles among adolescent users of an online mental health forum

Peter Franz[1], Erik Nook[1], Karthik Dinakar[2], Matthew Nock[1]

[1]Harvard University, [2]Massachusetts Institute of Technology

2-G-50 Cortical morphometry in attention deficit/hyperactivity disorder: contribution of thickness and surface area to volume

Charles Malpas[1], Richard Beare[1], Chris Adamson[1], Veronika Vilgis[1], Alasdair Vance[2], Mark Bellgrove[3], Timothy Silk[1]

[1]Murdoch Children's Research Institute, [2]The University of Melbourne, [3]Monash University

2-G-51 Developmental trajectories of irritability and associations with child and maternal depression

David Pagliaccio[1], Deanna Barch[2], Daniel Pine[1], Joan Luby[2], Ellen Leibenluft[1]

[1]National Institute of Mental Health, [2]Washington University in St. Louis

2-G-52 Cannabis use and adolescent neurocognitive development: a prospective fmri study

Brenden Tervo-Clemmens[1], Finnegan Calabro[1], Beatriz Luna[1]

[1]University of Pittsburgh

Poster Session 3
Saturday September 10, 2016

3-A-1 Do executive processes in working memory underlie the association between reading and math ability?

Marie Banich[1], Kai Wang[1], Daniel Leopold[1], Andrew Reineberg[1], L. Thompson[2], Laurie Cutting[3], Erik Willcutt[4], Stephen Petrill[5]

[1]University of Colorado , [2]Case Western Reserve University, [3]Vanderbilt University, [4]University of Colorado, [5]Ohio State University

3-A-2 White matter tract integrity is related to cognitive ability in early life

Jessica Bullins[1], Barbara Goldman[1], Sarah Short[1], Rebecca Knickmeyer[1], Martin Styner[1], John Gilmore[1]

[1]University of North Carolina at Chapel Hill

3-A-3 Cortical folding individual differences associated with cognitive ability in adolescence

Yu Sun Chung[1], Christopher Hyatt[1], Michael Stevens[1]

[1]Clinical Neuroscience and Development Laboratory, Olin Neuropsychiatry Research Center

3-A-4 The effects of uncertainty on concurrent information processing from late childhood to adulthood

Erik Kastman[1], Alea Skwara, Catherine Insel[1], Alexandra Rodman[1], Stephanie Sasse [1], Leah Somerville [1]

[1]Harvard University

3-A-5 Neonatal regional white matter microstructure correlates with cognitive inhibition and shifting efficiency in very preterm children at age 5 years

Rachel Lean[1], Tara Smyser[1], Jeanette Kenley[1], Joseph Ackerman Jr.[1], Joshua Shimony [1], Chris Smyser[1], Cynthia Rogers[1]

[1]Washington University School of Medicine

3-A-6 Developmental emergence of precuneus as a functional core of the default mode network

Rosa Li[1], Amanda Utevsky[1], Scott Huettel[1], Barbara Braams[2], Sabine Peters[3], Eveline Crone[3], Anna van Duijvenvoorde[3]

[1]Duke University, [2]Harvard University, [3]Leiden University

3-A-7 Maternal health behaviors and fetal functional neural connectivity networks in utero

Janessa Manning[1], Marion van den Heuvel[1], Jasmine Hect[1], Nacis Marshall[1], Moriah Thomason[1]

[1]Wayne State University

3-A-8 Gain stabilization of cognitive brain states underlies working memory development

David Montez[1], Finnegan Calabro[1], Beatriz Luna[1]

[1]University of Pittsburgh

3-A-9 Developmental differences in hippocampal-prefrontal mediated memory updating

Margaret Schlichting[1], Katharine Guarino[1], Alison Preston[1]

[1]The University of Texas at Austin

3-A-10 Association between reaction time variability and resting state fMRI in young adults with ADHD

Leanne Tamm[1], Clare Kelly[2], Stephen Becker[1], Tom Maloney[1], Baylie Fowler[1], Jeffery Epstein[1]

[1]Cincinnati Children's Hospital Medical Center, [2]Trinity College Institute of Neuroscience

3-A-11 The impact of size on the development of numerical estimation in early school years.

Arnaud Viarouge[1], Philippine Courtier[1], Manon Hoppe[1], Juliette Melnik[1], Grégoire Borst[1], Olivier Houdé[1]

[1]Paris Descartes University

3-B-12 Parents versus peers: Characterizing the neural correlates of conflicting social influence on adolescent attitudes

Kathy Do[1], Ethan McCormick[1], Eva Telzer[1]

[1]University of North Carolina, Chapel Hill

3-B-14 The influence of pubertal hormones on frontostriatal coupling during top-down regulation of motor versus reward response

Diane Goldenberg[1], Sarah Tashjian[1], Adriana Galvan[1]

[1]University of California, Los Angeles

3-B-15 Healthy eating decisions require efficient dietary self-control in children: a mouse-tracking food decision study

Oh-Ryeong Ha[1], Amanda Bruce[2], Stephen Pruitt[1], T. Ryan Smith[2], Dominic Burkart[1], Bradley Cherry[1], Jared Bruce[1], Seung-Lark Lim[1]

[1]University of Missouri - Kansas City, [2]University of Kansas Medical Center

3-B-16 The mesolimbic dopamine pathway is sensitive to early life adversity

Niki Hosseini-Kamkar[1], J Bruce Morton[1]

[1]Western University

3-B-17 Peer influences on adolescent risk taking: Comparing a community and foster care sample.

Zdena Op de Macks[1], Shannon Peake[1], John Flournoy[1], Jessica Flannery[1], Arian Mobasser[1], Maureen Durnin[1], Sarah Alberti[2], Philip Fisher[1], Jennifer Pfeifer[1]

[1]University of Oregon, [2]Oregon Health & Science University

3-B-18 Asymmetric effects of friends' gains and losses on adolescent risky decisions

Katherine Powers[1], Gina Falcone[1], Gideon Yaffe[2], Hedy Kober[2], Leah Somerville[1]

[1]Harvard University, [2]Yale University

3-B-19 Friend versus foe: Neural networks of prosocial decision-making with peers

Lisa Schreuders[1], Sanny Smeekens[2], Antonius Cillessen [1], Berna Guroglu[1]

[1]Leiden University, [2]Open University

3-C-20 A new neonatal parcellated brain atlas: The Melbourne Children's Regional Infant Brain (M-CRIB) atlas.

Bonnie Alexander[1], Andrea Murray, Wai Yen Loh[1], Lillian Matthews[1], Chris Adamson[1], Richard Beare[1], Jian Chen[1], Claire Kelly[1], Sandra Rees, Simon Warfield, Peter Anderson[1], Lex Doyle, Alicia Spittle [1], Jeanie Cheong[1], Marc Seal[1], Deanne Thompson[1]

[1]Murdoch Childrens Research Institute

3-C-21 Prospective associations between maternal Interleukin-6 concentrations during pregnancy and newborn amygdala volume and connectivity

Claudia Buss[1], Alice Graham, Jerod Rasmussen, Marc Rudolph[2], Christine Heim[1], John Gilmore[1], Martin Styner, Sonja Entringer[1], Pathik Wadhwa, Damien Fair

[1]Institut für Medizinische Psychologie , [2]

3-C-22 Ages differences in focal and nonfocal prospective memory tasks: An ERP study

Ana Cejudo Garcia[1], Almudena Ortega Segura[1], Mª Teresa Bajo Molina[1]

[1]Granada University

3-C-23 Pubertal timing is associated with white matter tract development in late adolescence

Rajpreet Chahal[1], Veronika Vilgis[1], Kevin Grimm[2], Kate Keenan[3], Erika Forbes[4], Allison Hipwell[4], Amanda Guyer[1]

[1]University of California Davis, [2]Arizona State University, [3]University of Chicago, [4]University of Pittsburgh

3-C-24 Fetal total intracranial volume growth using longitudinal MRI across the third trimester

Sarah Cohen[1], Soo Kwon[1], Sarah Cross[1], Cheryl Lacadie[1], Gordon Sze[1], R. Todd Constable[1], Laura Ment[1], Dustin Scheinost[1]

[1]Yale University

3-C-25 Fiber pathways supporting early literacy development in 5-8-year-old children

Anthony Dick[1], Iris Broce[1], Byron Bernal[2], Nolan Altman[2], Catherine Bradley[3], Natalie Baez[1], Luis Cabrera[1], Gretter Hernandez[1], Anna De Feria[1]

[1]Florida International University, [2]Nicklaus Children's Hospital, [3]C.W. Bill Young VA Medical Center, Bay Pines VA Healthcare System

3-C-26 Childhood poverty predicts neural connectivity to negative faces in adolescent girls

Kristina Gelardi[1], Veronika Vilgis[1], Artha Gillis[2], Erika Forbes[3], Alison Hipwell[3], Kate Kennan[4], Amanda Guyer[1]

[1]University of California, Davis, [2]University of California, Los Angeles, [3]University of Pittsburgh, [4]University of Chicago

3-C-27 Developmental trajectories of cortical thickness, gray matter volume, and surface area in children and young adults with Phenylketonuria

Zoe Hawks[1], Anna Hood[1], Dov Lerman-Sinkoff[1], Jerrel Rutlin[2], Joshua Shimony[2], Desiree White[1]

[1]Washington University in St. Louis, [2]Washington University School of Medicine in St. Louis

3-C-28 Structural brain correlates of resilience in adults with a history of childhood maltreatment

Kelly Jedd McKenzie[1], Alexandra Gibbs[1], Erin McKay[1], Ruskin Hunt[1], Dante Cicchetti[1], Raquel Cowell[2], Fred Rogosch[3], Sheree Toth[3], Kathleen Thomas[1]

[1]University of Minnesota, [2]St Norbert College, [3]University of Rochester Mt. Hope Family Center

3-C-29 The impact of diabetes and Wolfram Syndrome on functional connectivity

Olga Neyman[1], Abraham Snyder[1], Joshua Shimony[1], Tamara Hershey[1]

[1]Washington University School of Medicine

3-C-30 Strong positive and strong negative resting-state correlations best predict individual maturity

Ashley Nielsen[1], Deanna Greene[1], Steven Petersen[1], Brad Schlaggar[1]

[1]Washington University in St. Louis

3-C-31 The impact of family environments on brain development in late childhood

Sally Richmond[1], Marc Seal[2], Nicholas Allen[3], Katherine Johnson[1], Richard Beare[4], Sarah Whittle[5]

[1]The University of Melbourne, [2]Murdoch Childrens Research Institute; University of Melbourne, [3]University of Oregon, [4]Murdoch Childrens Research Institute, [5]University of Melbourne; Melbourne Health

3-C-32 Neural correlates of executive functioning in children engaged in music training

Matthew Sachs[1], Jonas Kaplan[1], Assal Habibi[1]

[1]Brain and Creativity Institute

3-C-33 Hubs in the fetal brain network

Marion van den Heuvel[1], Janessa Manning[1], Jasmine Hect[1], Narcis Marshall[1], Moriah Thomason[1]

[1]Wayne State University / Perinatology Research Branch, NICHD/NIH

3-C-34 Microstructural white matter integrity differentially predicts verbal and spatial working memory in children

Erika Wesonga[1], Joshua Shimony[1], Desiree White[1]

[1]Washington University

3-D-35 Sex differences in the impact of early life stress on prefrontal regulation of negative stimuli

Natalie Colich[1], Lucy King[1], Sarah Ordaz[1], Kathryn Humphreys[1], Ian Gotlib[1]

[1]Stanford University

3-D-36 Adaptive adjustment in cognitive control over reward in adolescence

Juliet Davidow[1], Koene R.A. Van Dijk[2], Jenna Snyder[3], Constanza Vidal[1], Margaret Sheridan[3], Leah Somerville[1]

[1]Harvard University, [2]Massachusetts General Hospital, [3]University of North Carolina

3-D-37 Developmental emergence of frontostriatal connectivity mediates flexible upregulation of cognitive control under high stakes

Catherine Insel[1], Catherine Glenn[2], Erik Kastman[1], Megan Garrad[1], Stephanie Sasse[1], Leah Somerville[1]

[1]Harvard University, [2]University of Rochester

3-D-38 Striatal function in emerging adolescence: who is in the driver's seat, age, reported puberty, or hormones?

Katherine Luking[1], Zachary Infantolino[2], Brady Nelson[1], Colin Sauder[3], Greg Hajcak[1]

[1]Stony Brook University, [2]University of Delaware, [3]University of Texas Health Science Center San Antonio

3-D-39 Age-varying associations between sensation-seeking, impulse control, and daily cigarette-smoking during adolescence and young adulthood

David Lydon-Staley[1], Charles Geier[1]

[1]The Pennsylvania State University

3-D-40 Lateral prefrontal cortical thickness mediates the relationship between age and regulation of craving

Rebecca Martin[1], Jennifer Silvers[2], Theodore Stephano[1], Catherine Insel[3], Alisa Powers[4], Peter Franz[3], Walter Mischel[1], BJ Casey[5], Kevin Ochsner[1]

[1]Columbia University, [2]University of California, Los Angeles, [3]Harvard University, [4]Long Island University, [5]Yale University

3-D-41 Early MDD severity associated with developmental changes in functional connectivity of subgenual cingulate

Eric Murphy[1], Joan Luby[1], Deanna Barch[1]

[1]Washington University in St Louis

3-D-42 Atypical development of amygdala functional connectivity in autism: a cross-sectional study

Paola Odriozola[1], Dina Dajani[2], Catherine Burrows[2], Laurel Gabard-Durnam[3], Dylan Gee[1], Nim Tottenham[3], Lucina Uddin[2]

[1]Yale University, [2]University of Miami, [3]Columbia University

3-D-44 Prosocial behavior in childhood and its neural correlates: A pilot, test and replication study

Mara van der Meulen[1], Nikolaus Steinbeis[1], Michelle Achterberg[1], Elisabeth Bilo[1], Marinus van IJzendoorn[1], Eveline Crone[1]

[1]Leiden University

3-D-45 The effects of early adversity on amygdala-prefrontal circuitry during emotional face processing in children and adolescents

Michelle VanTieghem[1], Eva Telzer[2], Laurel Gabard-Durnam[1], Jessica Flannery[3], Bonnie Goff[4], Dylan Gee[5], Kate Humphreys[6], Christina Caldera[4], Mor Shapiro[4], Jennifer Louie[7], Nim Tottenham[1]

[1]Columbia University, [2]University of Illinois-Urbana Champaign, [3]University of Oregon , [4]UCLA, [5]Weill Cornell , [6]Stanford University, [7]Kaiser Permanente

3-F-46 Learning to inhibit: A pedagogical intervention to overcome systematic difficulties in fundamental academic learnings in primary school

Gregoire Borst[1], Olivier Houdé[1]

[1]Paris Descartes University

3-F-47 Parents' decontextualized talk during early childhood predicts the neural bases of narrative processing in later childhood

Ozlem Ece Demir[1], Salomi Savvatia Asaridou[2], Susan Goldin-Meadow[1], Susan Levine[1], Steve Small[2]

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3-F-48 Natural language processing of fMRI reveals cognitive learning induced changes in brain circuit dynamics

Jonathan Nicholas[1], Kaustubh Supekar[1], Vinod Menon[1]

[1]Stanford University

3-G-49 Pre-delusional symptom severity predicts accelerated gray matter reduction and ventricular enlargement in prodromal youth who develop psychosis

Yoonho Chung[1]

[1]Yale University

3-G-50 Using accelerometry to describe normative motor patterns across development

Catherine Drazen[1], Annie Nguyen[1], Elyse Everett[1], Jonathan Koller[1], Dustin Ragan[1], Nico Dosenbach [1]

[1]Washington University in St. Louis

3-G-51 The Role of the Hippocampus in Context Processing and Disruption following Child Trauma

Hilary Lambert[1], Kelly Sambrook[1], Margaret Sheridan[2], Maya Rosen[1], Katie Askren[1], Katie McLaughlin[1]

[1]University of Washington, [2]University of North Carolina

3-G-52 Theta relative power distinguishes young children with ADHD from those without ADHD

Jenna Snyder[1], Laura Machlin[1], Margaret Sheridan[1]

[1]University of North Carolina at Chapel Hill

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www.humanconnectome.org

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Royal Society Publishing

https://royalsociety.org/journals/

The Royal Society publishes a number of life sciences journals relevant to this conference.

Please see the table literature or https://royalsociety.org/journals/ for more details.

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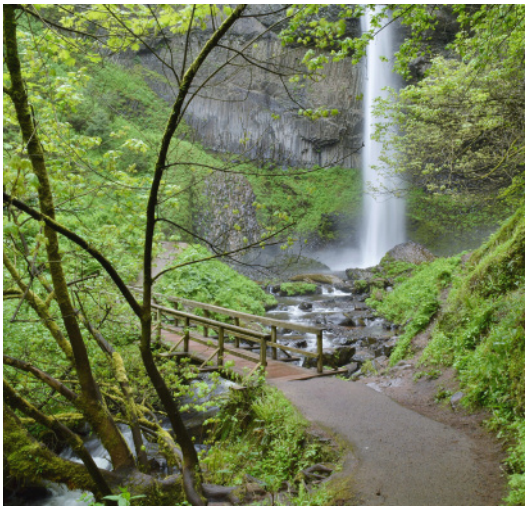

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