Congress Program

3rd Annual Flux Congress
September 17-19, 2015

SRCD Meeting
September 16-17, 2015

flux
CONGRESS
The International Congress for Integrative Developmental Cognitive Neuroscience

Stadsgehoorzaal Leiden
Leiden, Netherlands

www.fluxcongress.org

SRCD
Society for Research in Child Development

Flux Congress / SRCD Meeting
Program-at-a-Glance

SRCD Meeting
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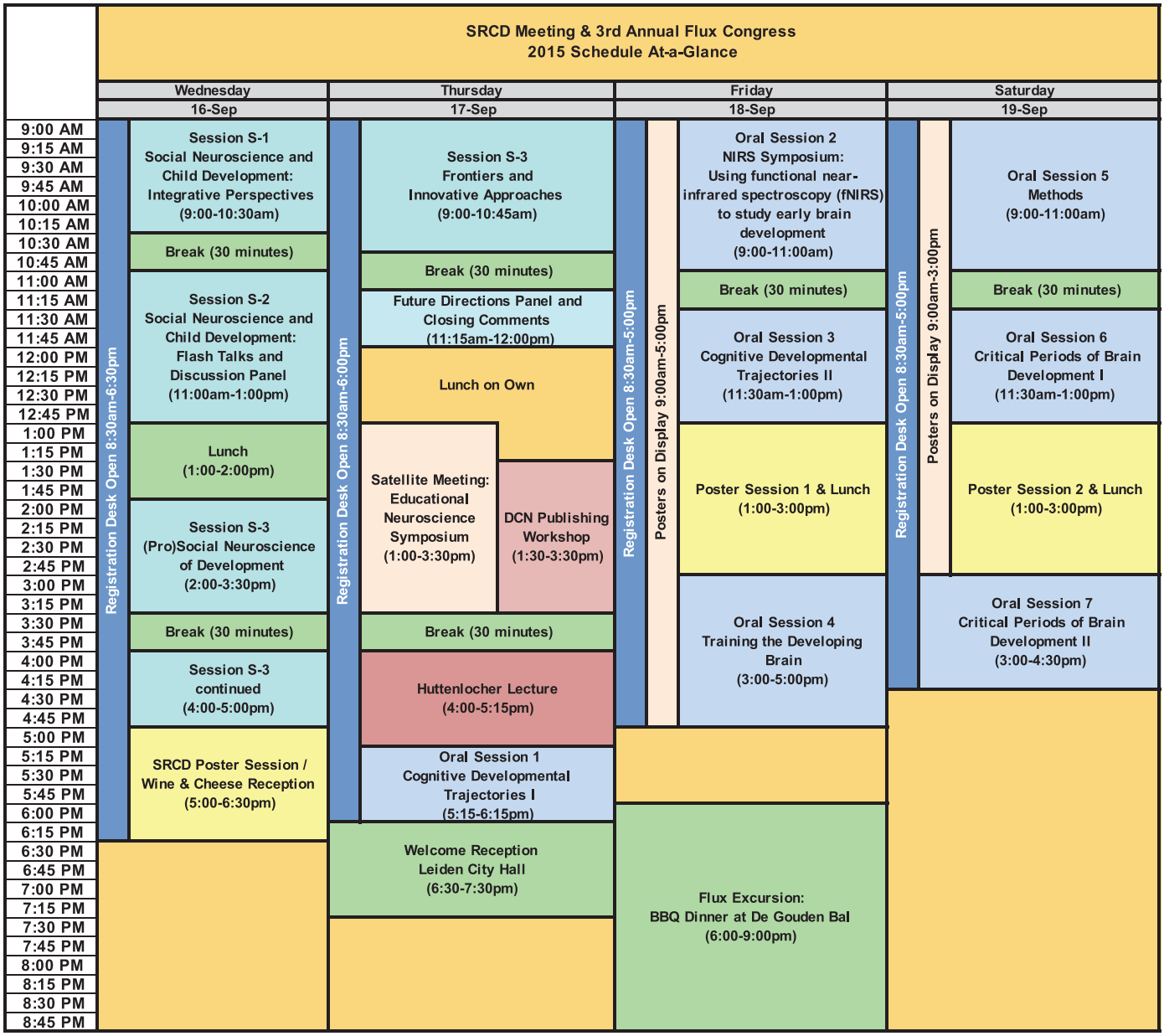


Program Contents

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.fluxcongress.org**.

Welcome
to the Third Flux Congress

Welcome to our third meeting of Flux, the International Congress for Integrative Developmental Cognitive Neuroscience, in Leiden, The Netherlands!

Following the Flux Society's aim to provide a platform for bringing the field together, we established that the meetings alternate between eastern (Flux 1 in Pittsburgh, PA) and western (Flux 2 in Los Angeles, CA) US locations followed by an international venue. We are delighted that we are meeting in Leiden, The Netherlands for this year's Flux 3, 2015, the first international meeting. As we continue to grow, this year has already surpassed past years with over 150 memberships and 160 submissions. Importantly, we are very excited to collaborate this year with the **Society for Research in Child Development** (SRCD), whose scientific aims compliment and interact with those of Flux. We have a truly exciting program this year, probing important questions and new areas of interest in DCN, keeping with our aims of understanding the brain basis of development and being informed regarding neural mechanisms.

We would like to express our sincere and deep gratitude to those who have worked tirelessly to bring you Flux 3 in Leiden.

In particular, thank you to **Eveline Crone** our Host Chair, and Anna van Duijvenvoorde, Sarah Durston, Chantal Kemner, Lydia Krabbendam, Mariette Huizinga, and Hilde Huizenga who serve in her committee for the fantastic job they did of securing an exciting conference environment. We are looking forward to the beach picnic where we will have a chance to interact and form lasting bonds.

Thank you to **Sarah-Jayne Blakemore** for the outstanding job you did as the Program Chair with your committee members: Mark Johnson, Nick Allen, Ron Dahl, Beatriz Luna, Eveline Crone, and Bruce McCandliss organizing an exciting and ground breaking scientific program. Thank you to **Ron Dahl** for the initiative to bring SRCD and Flux together this year to enhance the greater field as a whole. Thank you to all the outstanding speakers and poster presenters for sharing your amazing work. Thank you to the 2015 Huttenlocher Awardee **Mark Johnson** for your foundational contributions to defining Developmental Cognitive Neuroscience and for opening the meeting by sharing your vision 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. The aim of this society is "*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 are actively considering ways that we can expand as a Society, finding new and interesting ways to enhance discussion and dissemination. For example, we have established a Communications Committee (Jason Chein – chair, Kathy Anderson, Monique Ernst, Leah Sommerville, and Tanya Evans) which is planning possible Webinars to hold discussions on current topics in DCN as well as a newsletter. 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 attending **Flux 4, September 8-10, 2016** in **St. Louis, Missouri**, hosted by **Brad Schlaggar** and **Deanna Barch**. As you know, Washington University in St. Louis has been a pioneer and leader in developmental cognitive neuroscience. This 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

from the SRCD Meeting / Flux Congress Program Chairs

Welcome to Flux Congress Attendees
This year we have an exciting program with a range of topics in our field, with a specific focus on understanding critical periods of brain development, the effects of training, and methods in a developmental cognitive neuroscience. The 2015 program includes the SRCD Special Topic Meeting, the Educational Neuroscience Symposium Satellite Meeting, and the Flux Congress, which will feature the Huttenlocher Lecture, 25 oral presentations and 142 poster presentations.

In addition to our scientific program, we have organized two social events which we hope attendees will attend and enjoy. The Opening Reception will take place from 6:30 – 7:30PM on Thursday, September 17 at Leiden City Hall (a close walk from the Congress venue). We have also arranged an exciting Beach Picnic BBQ For this year's Flux excursion, which will take place at De Gouden Bal, a 20-minute bus ride outside of Leiden.

Welcome to SRCD Meeting Attendees
We are delighted to be partnering with our colleagues in the Flux Society to create this exciting set of meetings. We are grateful to the many people who have contributed to developing and supporting this innovative SRCD Special Topic meeting: **Social Neuroscience Perspectives on Child Development**. We believe that the presentations and discussions – focused broadly on developmental science and child development combined with a strong interest in neuroscience – will create valuable synergies with the Flux Congress. We look forward to a rich and rewarding set of experiences that will advance the fields and create many new connections, personally and professionally.

Congress Venue: The Stadsgehoorzaal
The Stadsgehoorzaal is one of the largest concert halls in the city center of Leiden. It was built in 1891, after the original Stadsgehoorzaal was destroyed by a large fire. The Stadsgehoorzaal is an impressive example of neorenaissance architecture, which is hardly present anymore in the Netherlands. The uniqueness, history and location of the Stadsgehoorzaal make it the ideal place for the SRCD Meeting and Flux Congress.

Leiden - City of Discoveries
Leiden is a typical university city, hosting the oldest university in the Netherlands (1575). University buildings are scattered throughout the city and 30,000 students give the city a relaxed and vivid atmosphere. Leiden University is one of Europe's top universities; it boasts twelve Nobel Prize winners, is a member of the League of European Research Universities, and is positioned highly in international academic rankings. Leiden is also home to many museums and historic buildings, and is close to the North Sea coast and to beautiful national parks in the dune landscape.

We are looking forward to both of these exciting meetings and to interacting with attendees.

Sincerely,

Sarah-Jayne Blakemore
Flux Congress Program Chair

Eveline Crone
Flux Congress Local Organizing Committee Chair

Ron Dahl
SRCD Meeting Co-Chair

Jennifer Pfeifer
SRCD Meeting Co-Chair

Seth Pollak
SRCD Meeting Co-Chair

Flux Leadership

Society Executive Committee

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

Congress Local Organizing Committee

Eveline Crone (Chair)	Leiden University
Anna van Duijvenvoorde	Leiden University
Sarah Durston	Utrecht University
Chantal Kemner	Utrecht University
Lydia Krabbendam	VU Amsterdam
Mariette Huizinga,	VU Amsterdam
Hilde Huizenga	University of Amsterdam

Congress Scientific Program Committee

Sarah-Jayne Blakemore (Chair)	University College London, UK
Mark Johnson	University of London, UK
Nick Allen	University of Oregon, USA
Ron Dahl	University of California, Berkeley, USA
Beatriz Luna	University of Pittsburgh, USA
Eveline Crone	Leiden University, Netherlands
Bruce McCandliss	Stanford University, USA

flux
CONGRESS

The International Congress
for Integrative Developmental
Cognitive Neuroscience

Flux Congress Management

Podium Conference Specialists

Marischal De Armond

Caitlin Mooney

The Society for Research in Child Development presents

Social Neuroscience Perspectives on Child Development

This 1.5 day meeting will focus on some of the exciting advances in developmental social and affective neuroscience, with a strong emphasis on understanding how social experiences actively shape developing neural systems in children and adolescents. The broad goals of this conference are to promote a more integrative developmental science approach to understanding social and emotional development. The conference will include special sessions for students, invited keynote speakers, a poster session, a symposium on the neuroscience of prosocial development, and a closing panel discussion on future directions for this exciting and rapidly growing field.

SRCD Meeting Program Committee

Ron Dahl (Co-Chair)	University of California, Berkeley, USA
Jenn Pfeifer (Co-Chair)	University of Oregon, USA
Seth Pollak (Co-Chair)	University of Wisconsin, Madison, USA
Nick Allen	University of Oregon, USA
Eveline Crone	Leiden University, Netherlands
Sarah-Jayne Blakemore	University College London, UK

General Congress Information

Meeting Venue

Stadsgehoorzaal Leiden
Breestraat 60
2311 CS Leiden, Netherlands

Registration

Congress registration fees include access to all sessions including the welcome reception, speaker presentations, continental breakfasts, coffee breaks, and poster lunch 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 Entrée Foyer, will be open during the following dates and times:

Wednesday, September 16	8:00AM – 7:00PM
Thursday, September 17	8:00AM – 6:00PM
Friday, September 12	8:00AM – 5:00PM
Saturday, September 13	8:00AM – 4:30PM

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 Entrée Foyer.

Complimentary WIFI Information:

Network: Flux Congress. Password: fluxcongress15

Poster Information

• SRCD MEETING

Please set your poster up by 5:000PM on Wednesday, September 16. The poster session will run from 5:00 to 6:30PM. All posters are to be removed at 6:30PM. Any posters not removed will be taken down by congress staff.

• FLUX CONGRESS

There are two Poster Sessions during the Congress. All posters must be set up on Friday, September 18 by 11:00AM, and are to remain up for the duration of the Congress.

Odd numbered posters will be presented on Friday, September 18, and **even numbered posters** will be presented on Saturday, September 19.

All posters must be removed by the end of the second poster session at 3:00PM on Saturday, September 19. Any posters not removed will be taken down by congress staff.

Poster Session 1: Friday, September 18
Mandatory Hours: 1:00 – 3:00PM

Poster Session 2: Saturday, September 19
Mandatory Hours: 1:00 – 3:00PM

Information on Poster Authors, Poster Numbers and Poster Titles begins on page 24. 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 pages 22 and 23 of this program.

Flux Social Functions

Opening Reception

The Opening Reception will take place at Leiden City Hall from 6:30 – 7:30PM. Light refreshments will be served, and there will be an open bar. *Walking directions at right*.

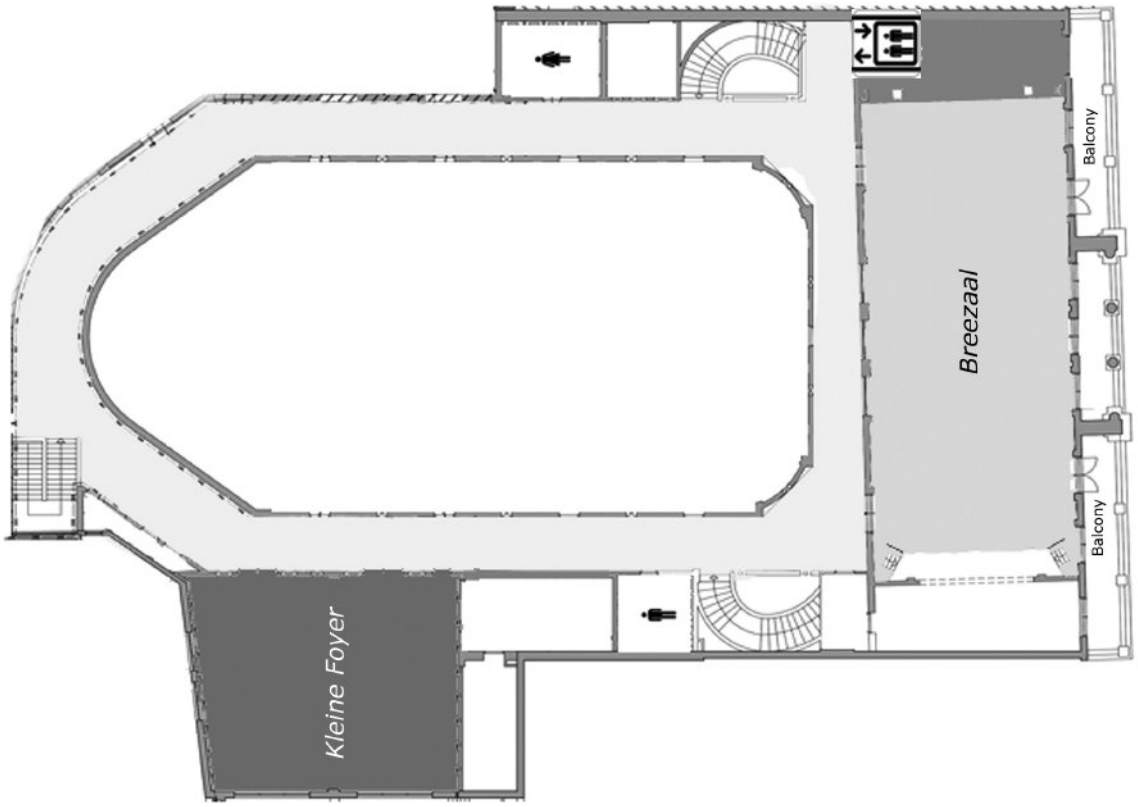
Flux Congress Excursion

This year's Flux excursion will take place at **De Gouden Bal** at the beach – a 20 minute bus ride outside of Leiden. The cost of transport is included in the price, and the buses will leave the meeting venue at 6:00PM and arrive at De Gouden Bal by 6:30PM.

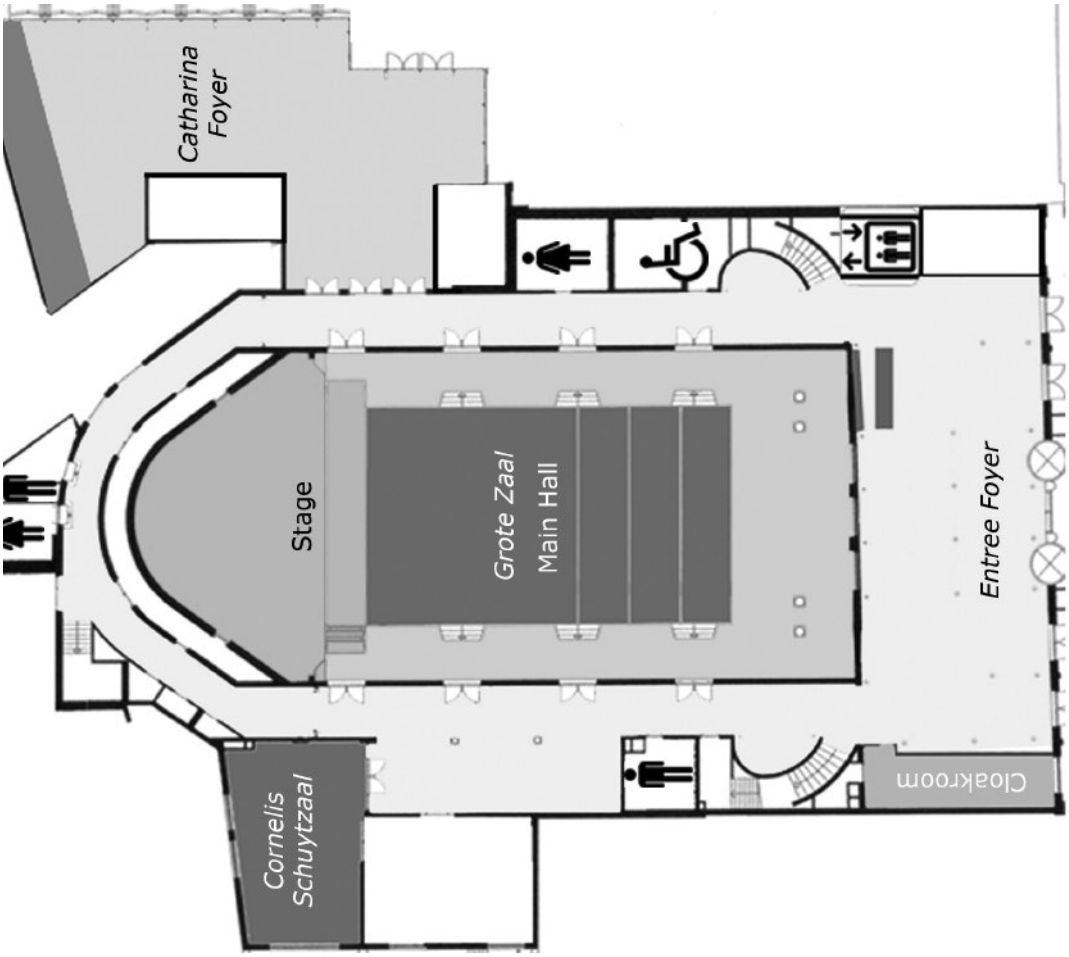
We will enjoy a bbq picnic style dinner; drinks (beer, wine, coffee, tea and sodas) are available for €2,50 each.

Please bring Euros with you for beverage purchases, and be sure to dress in layers. The bus will depart back to Leiden at 9:00PM.

Congress Venue Floor Plan



First Floor



Ground Floor

SRCD Meeting Program Schedule

Day 1 Wednesday, September 16

Session S-1
Social Neuroscience and Child Development: Integrative Perspectives

9:00 – 9:45AM **S.1.1** *The Varieties of Emotional Experience: Social Neuroscience Perspectives on Children's Learning*
Seth Pollak, University of Wisconsin-Madison, USA

9:45 – 10:30AM **S.1.2** *The developmental neuroscience of promoting autonomy and providing protection: Implications for public and legal policy*
Nick Allen, University of Oregon, USA

10:30 – 11:00AM Break

Session S-2
Social Neuroscience and Child Development: Flash Talks and Discussion Panel

11:00AM – 12:30PM **Jacobs Foundation International Young Investigator Award Flash Talks**

S.2.1 *Mothers matter during adolescence: evidence from behavioral rating and fMRI*
Barbara Braams, Leiden University, Netherlands

S.2.2 *A longitudinal fMRI study of self-evaluation across adolescence*
Danielle Cosme, University of Oregon, USA

S.2.3 *Puberty, social comparison, and risky decisions in adolescent girls*
Zdena Op de Macks, University of California, Berkeley, USA

S.2.4 *Puberty and Age Differentially Predict Reward Versus Cost Sensitivity on the Iowa Gambling Task via Distinct Mechanisms*
Grace Icenogle, Temple University, USA

S.2.5 *Rejection Sensitivity impacts Neural Responses to Social Rejection from Romantic Partners and Unfamiliar Peers: A dual EEG acquisition study*
Thao Ha, Arizona State University, USA

S.2.6 *Appraising and reappraising social ambiguity in adolescence: Individual differences in social anxiety and the recruitment of emotion regulation networks*
Simone Haller, University of Oxford, UK

S.2.7 *Structural development of the social brain and links with social cognition*
Rosa Meuwese, Leiden University, Netherlands

S.2.8 *Conceptual development in Theory of Mind is reflected in emerging neural distinctions*
Hilary Richardson, Massachusetts Institute of Technology, USA

12:30 – 1:00PM **Discussion Panel**

1:00 – 2:00PM Lunch

2:00 – 5:00PM **Session S-3**

(Pro)Social Neuroscience of Development Symposium

2:00 – 2:30PM **S.3.1** *Socio-Affective Brain Functioning and Prosociality: Longitudinal Links Across Adolescence*
Jennifer Pfeifer, University of Oregon, USA

2:30 – 3:00PM **S.3.2** *Neural Correlates of Prosocial Behavior and Links to Well-Being in Adolescence*
Eva Telzer, University of Illinois, Urbana-Champaign, USA

3:00 – 3:30PM **S.3.3** *Some Neural, Hormonal, and Situational Determinants of Prosociality*
Marinus Van Ijzendoorn, Leiden University, Netherlands

3:30 – 4:00PM Break

4:00 – 4:30PM **S.3.4** *The Development of Empathy and Prosocial behavior: The View from Social and Affective Neuroscience*
Kevin Ochsner, Columbia University, USA

4:30 – 5:00PM **Discussion Panel**
Andrew Fuligni, University of California, Los Angeles, USA
Sarah-Jayne Blakemore, University College London, UK
Ron Dahl, University of California, Berkeley, USA

5:00 – 6:30PM **Posters/wine and cheese reception**

Day 2 Thursday, September 17

Session S-4
Frontiers and Innovative Approaches

9:00 – 9:35AM *Maturation of the frontal cortex at puberty onset*
Linda Willbrecht, University of California, Berkeley, USA

9:35 – 10:10AM *Specifying interactions between the environment and the developing social brain*
Nikolaus Steinbeis, Max Planck Institute, Germany

10:10 – 10:45AM *Construct Validity is (Still) Crucial: Building a Genetically-Informed Nomological Network for Measures used in the Study of Adolescent Risk-Taking*
Paige Harden, University of Texas at Austin, USA

10:45 – 11:15AM Break

11:15 - 11:45AM **Session S-5: Future Directions Panel**

Eveline Crone, Leiden University, Netherlands
Wouter Van den Bos, Max Planck Institute, Germany
Seth Pollak, University of Wisconsin-Madison, USA
Linda Wilbrecht, University of California, Berkeley, USA

11:45AM – 12:00PM **Closing Comments**

Ron Dahl, University of California, Berkeley, USA
Jennifer Pfeifer, University of Oregon, USA
Seth Pollak, University of Wisconsin-Madison, USA

12:00 – 1:00PM **U.S. National Science Foundation Conversation Hour** (Kleine Foyer)

Laura Namy & Chuck Kalish, National Science Foundation
Come participate in an informal question and answer session on funding opportunities within NSF for developmental scientists, and best practices for preparing competitive grant proposals. Feel free to bring your lunch!

Flux Congress Program Schedule

Day 1 Thursday, September 17

Satellite Meeting

1:00 – 3:30 PM **Educational Neuroscience Symposium**

Chair: **Mariette Huizinga**, VU University Amsterdam, Netherlands

Sarah-Jayne Blakemore, University College London, UK
How social development shapes the learning brain

Bruce McCandliss, Stanford University, USA
Bridging Neuroscience and Education

Lydia Krabbendam, VU University Amsterdam, Netherlands
Mindsets matter: how beliefs about the brain impact learning potential

Pre-Congress Workshop

1:30 – 3:30 PM **Developmental Cognitive Neuroscience Publishing Workshop** (Kleine Foyer)

This is an introductory workshop aimed at early career researchers looking at how to get published in journals, how to review a paper, publishing ethics and open access.

Opening of Flux Congress

3:45 – 4:00 PM **Welcome Comments**

Sarah-Jayne Blakemore, University College London, UK

Eveline Crone, Leiden University, Netherlands

Brad Schlaggar, University of Washington, St. Louis, USA

Beatriz Luna, University of Pittsburgh, USA

4:00 – 5:00 PM **Huttenlocher Lecture**

Developmental Cognitive Neuroscience: Progress and Prospects

Mark Johnson, Birkbeck, University of London, UK

Oral Session 1: Cognitive Developmental Trajectories I

Chair: Kathleen Anderson, National Institute of Mental Health, USA

5:00 – 5:30 PM **O.1.1** *Longitudinal Studies of Cognitive Maturation*
Beatriz Luna, University of Pittsburgh, USA

5:30 – 6:00PM **O.1.2** *Structural brain development across adolescence: Patterns, plasticity and psychopathology*
Nick Allen, University of Oregon, USA

6:30 – 7:30PM **Welcome Reception** – Leiden City Hall
Stadhuisplein 1, Leiden

Day 2 Friday, September 18

Oral Session 2: NIRS Symposium: Using functional near-infrared spectroscopy (fNIRS) to study early brain development

Chair: Szilvia Biro, Leiden University, Netherlands

9:00 – 9:30AM **O.2.1** *The role of prosody in bootstrapping language acquisition: NIRS and NIRS-EEG co-recording studies with newborns*
Judit Gervain, CNRS and Université Paris Descartes, France

9:30 – 10:00AM **O.2.2** *Some Aspects of First Language Acquisition: Insights from Non-Invasive Optical Imaging (fNIRS) and EEG*
Hellmuth Obrig, Max Planck Institute for Human Cognitive and Brain Sciences, Germany

10:00 – 10:30AM **O.2.3** *Using fNIRS to study infants at risk for compromised development*
Sarah Lloyd-Fox, Centre for Brain and Cognitive Development, University of London, UK

10:30 – 11:00AM **O.2.4** *Using fNIRS to study asymmetric frontal cortical activity in infants*
Renske Huffmeijer, Centre for Child and FAMily Studies, Leiden University, Netherlands

11:00 – 11:30am Coffee Break

Oral Session 3: Cognitive Developmental Trajectories II
Chair: Iroise Dumontheil, Birkbeck, University of London, UK

11:30AM – 12:00PM **O.3.1** *Longitudinal brain development in adolescence*
Eveline Crone, Leiden University, Netherlands

12:00 – 12:30PM **O.3.2** *Risk and Resilience Predictors of Teenage Drug Use*
Hugh Garavan, University of Vermont, USA

12:30 – 1:00PM **O.3.3** *Longitudinal development of white matter microstructure and working memory across childhood*
Christian Tamnes, University of Oslo, Norway

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

Oral Session 4: Training the Developing Brain
Chair: Barbara Braams, Leiden University, Netherlands

3:00 – 3:30PM **O.4.1** *Real-time FMRI-based neurofeedback in the developing emotion regulation network*
Kathrin Cohen Kadosh, University of Oxford, UK

3:30 – 4:00PM **O.4.2** *Eyetracking as a window into typical and atypical brain development*
Silvia Bunge, University of California, Berkeley, USA

4:00 – 4:30PM **O.4.3** *Developmental cognitive neuroscience of math learning: implications for interventions in learning disabilities*
Vinod Menon, Stanford University, USA

4:30 – 5:00PM **O.4.4** *Struggling readers before and after reading intervention*
Jessica Church, University of Texas, USA

6:00 – 9:00PM **Flux Excursion: BBQ Picnic Dinner at De Gouden Bal**
* Tickets are $39 each and include transport and dinner. Meet in lobby at 6:00PM for bus departure

Day 3 Saturday, September 19

Oral Session 5: Methods
Jay Giedd, University of California, San Diego, USA

9:00 – 9:30AM **O.5.1** *Connectotyping: a new way of analyzing functional neuroimaging data in typically and atypically developing individuals*
Damien Fair, Oregon Health and Science University, USA

9:30 – 10:00AM **O.5.2** *Using fMRI to compare neural activity between groups: What do we need to be cautious about?*
Julia Harris, University College London, UK

10:00 – 10:15AM **O.5.3** Multi-echo resting state across development
Monique Ernst, National Institute of Mental Health/ NIH, USA

10:15 – 10:30AM **O.5.4** *Individual Differences in Functional Connectivity Dynamics Across Development: Implications for reward-processing*
J. Bruce Morton, University of Western Ontario, Canada

10:30 – 10:45AM **O.5.5** F*unctional Connectivity in Reward Circuitry Mediates Associations between Adolescent Cannabis Use and Age 22 Psychosocial Functioning*
Erika Forbes, University of Pittsburgh, USA

11:00 – 11:30AM Coffee Break

11:30AM – 1:00PM **Oral Session 6: Critical Periods of Brain Development I**
Chair: Bernd Figner, Radboud University, Netherlands

11:30 – 11:45AM **O.6.1** *The impact of Depression on the Trajectory of Brain Development During Critical Periods*
Deanna Barch, Washington University, USA

11:45AM – 12:00PM **O.6.2** *Charting the developmental trajectory of emotion regulation*
Jennifer Silvers, Columbia University, USA

12:00 – 12:30PM **O.6.3** *Puberty and drug abuse: Lessons from preclinical research*
Miriam Schneider, Heidelberg University, Germany

12:30 – 1:00PM **O.6.4** *Human Amygdala-PFC Circuit Development and the Role of Caregiving*
Nim Tottenham, Columbia University, USA

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

Oral Session 7: Critical Periods of Brain Development II
Chair: Nim Tottenham, Columbia University, USA

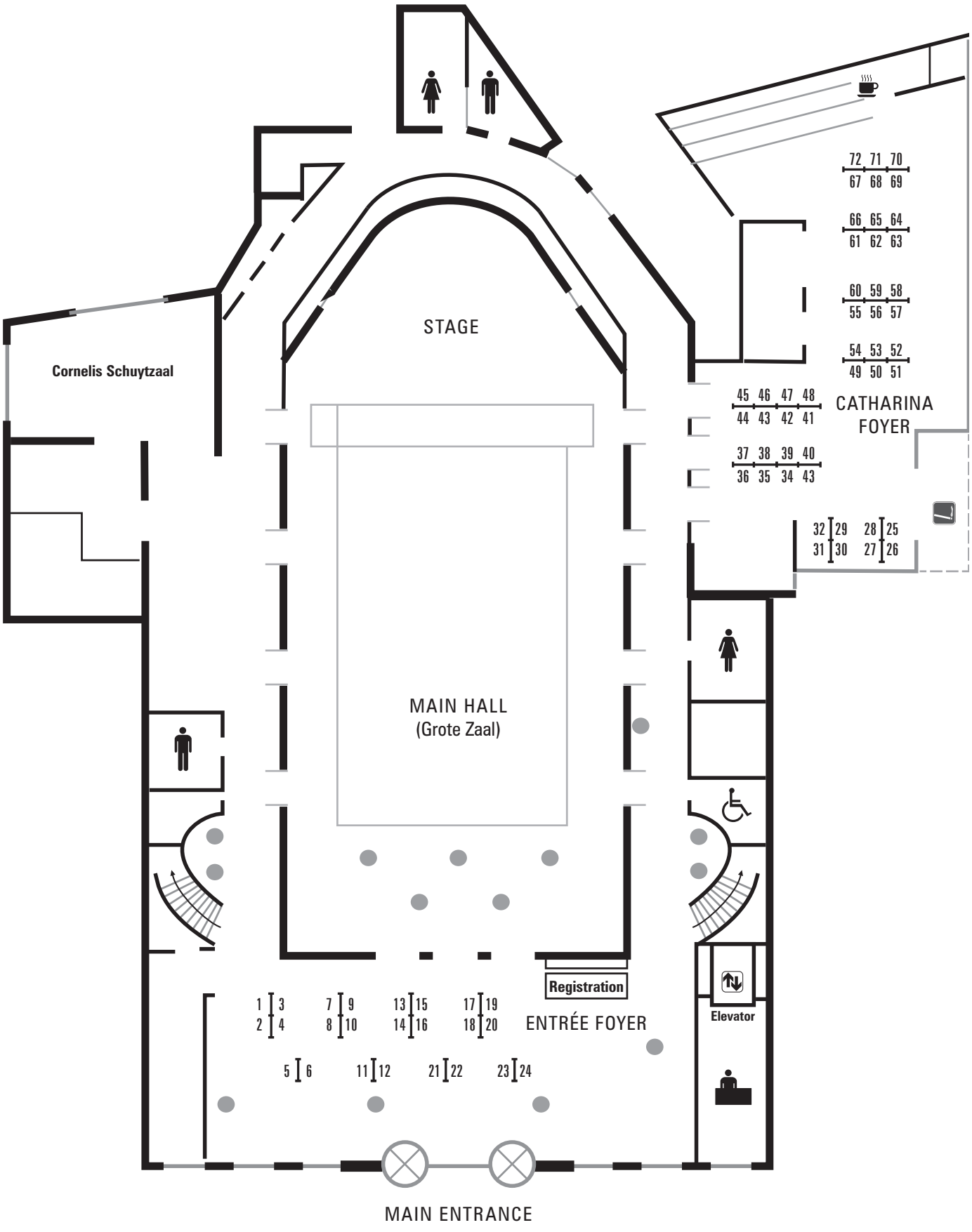
3:00 – 3:15PM **O.7.1** *A sensitive period for addiction prevention*
Sue Andersen, McLean Hospital and Harvard Medical School, USA

3:15 – 3:30PM **O.7.2** *Life Stress in Adolescence Predicts Reward-Related Functional Connectivity and Depressive Symptoms in Early Adulthood*
Melynda Casement, University of Pittsburgh, USA

3:30 – 4:15PM **O.7.3** *Mechanisms of Critical Period Brain Development*
Takao Hensch, Harvard University, USA

End of Meeting

SRCD Posters Floor Plan | Ground Floor Level



SRCD Meeting Posters | Titles, Authors and Affiliations

The SRCD Poster Session will take place on Wednesday, September 16 from 5:00 to 6:30 PM. Please ensure that your poster is put up by 5:00pm and taken down at 6:30 PM.

A full list of poster abstracts can be found at www.fluxcongress.org.

P-1 The depth of conflict: ERP amplitude at N2 is associated with variation in reaction time in a perceptual interference task

Tone Hermansen[1], Santeri Yrttiaho[2], Jukka Leppanen[2], Espen Roysamb[2], Annika Melinder[2]

[1]University of Oslo, [2]Univerisity of Tampere

P-2 The role of inhibitory control in adolescent scientific and mathematical reasoning

Annie Brookman[1], Denis Mareschal[1], Andy Tolmie[2], Iroise Dumontheil[1]

[1]Birkbeck, University of London, [2]UCL Institute of Education

P-3 Is adolescence a sensitive period for relational reasoning?

Lisa Knoll[1], Delia Furhmann[1], Ashok Sakhardande[1], M Speekenbrink[1], Sarah-Jayne Blakemore[1]

[1]University College London

P-4 Dorsal Stream hierarchical organization and the development of visual attention

Andrew Lynn[1], Dima Amso[1]

[1]Brown University

P-5 Differential effects of socioeconomic status on declarative and procedural memory systems

Julia Leonard[1], Allyson Mackey[1], Amy Finn[1], John Gabrieli[1]

[1]Massachusetts Institute of Technology

P-6 The development of observational learning: An ERP approach

Julia Rodriguez Buritica[1], Ben Eppinger[2], Nicolas Schuck[3], Hauke Heekeren[1], Shu-Chen Li[2]

[1]FU Berlin, [2]TU Dresden, [3]Princeton University

P-7 Developmental changes in the influence of COMT genotype on the processing of self-generated thought

Emma Kilford[1], Iroise Dumontheil[2], Sarah-Jayne Blakemore[1]

[1]University College London, [2]Birkbeck, University of London

P-8 Predictors of individual growth rates in mathematics achievement

Iro Xenidou-Dervou[1], Hans van Luit[2], Evelyn Kroesbergen[2], Ilona Friso-van den Bos[2], Lisa Jonkman[3], Menno van der Schoot[1], Ernest van Lieshout[1]

[1]VU University Amsterdam, [2]Utrecht University, [3]Maastricht University

P-9 Is adolescence a sensitive period for learning numerosity discrimination?

Ashok Sakhardande[1], Delia Fuhrmann[1], Lisa Knoll[1], Maarten Speekenbrink[1], Sarah-Jayne Blakemore[1]

[1]Institute of Cognitive Neuroscience, UCL

P-10 Optimising methods for perceptual learning in children

Carlijn van den Boomen[1], Judith Peters[2]

[1]Utrecht University, [2]Maastricht University, Dept. of Cognitive Neuroscience; Netherlands Institute for Neuroscience,

P-11 Early executive functioning in children reared in different social environment

Marina Vasilyeva[1], Julia Korshina[1], Ekaterina Kurohtina[1]

[1]Saint-Petersburg State University

P-12 The contribution of individual differences in self-regulation to children's school functioning: A multidisciplinary perspective

Noelia Sanchez Perez[1], Luis Fuentes[2], Nancy Eisenberg[3], Carmen Gonzalez-Salinas[2]

[1]University of Murcia, [2]Universidad de Murcia, [3]Arizona State University

P-13 Auditory Statistical Learning in Children with ASD Relates to Verbal IQ: An EEG Study

Charlotte DiStefano[1], Connie Kasari[1], James McCracken[1], Shafali Jeste[1]

[1]University of California, Los Angeles

P-14 Sensorimotor Integration in Typically Developing Children and Those with Autism

Stefanie Bodison[1], Megan Herting[2], Elizabeth Sowell[1]

[1]University of Southern California, [2]Children's Hospital Los Angeles

P-15 Social attention in high functioning young adults with autism spectrum disorder: Visual gazing during viewing of naturalistic emotional scenes

Renee Dijkhuis[1], Tim Ziermans[1], Emine Gurbuz[1], Wouter Staal[2], Hanna Swaab[1]

[1]Leiden University, [2]Karakter Child and Adolescent Psychiatry University Centre

P-16 Does experience shape the brain? The effect of cataract on development of visual segmentation

Carlijn van den Boomen[1], Yvonne Koenraads[2], Saskia Imhof[2], Victor A.F. Lamme[1], Chantal Kemner[1]

[1]Utrecht University, [2]University Medical Center Utrecht

P-17 White matter plasticity associated with working memory training in 6year old children

Sarah Short[1], Rachel Steiner[1], Barbara Goldman[1], Jingwen Zhang[1], John Gilmore[1]

[1]University of North Carolina at Chapel Hill

P-18 Maturational trajectories of subcortical grey matter microstructure: A longitudinal study

Kathrine Skak Madsen[1], Terry Jernigan[2], Louise Baruîl Johansen[1], Mark Lyksborg[3], Wesley Thompson[2], William Baare[1]

[1]Copenhagen University Hospital Hvidovre, [2]University of California San Diego, [3]Technical University of Denmark

P-19 Association between amygdala and hippocampal volumes and condom use for adolescent girls

Sephira Ryman[1], Angela Bryan[2], Andrew Mayer[3], Josef Ling[3], Sarah Feldstein Ewing[1]

[1]University of New Mexico, [2]University of Colorado Boulder, [3]Mind Research Network

P-20 Left But not Right Amygdala Volume Associated with Early Attachment Disturbance and Later Limbic Irritability

Karlen Lyons-Ruth[1], Pia Pechtel[1], Carl Anderson[1], Annie Yoon[2], Martin Teicher[1]

[1]Harvard Medical School , [2]City University of New York

P-21 An Integrative Pluralistic Approach to Social Developmental Neuroscience: Locating Diverse Epistemologies Along Ecological Continuum

Aiden Sisler[1], Lia Hart[1]

[1]TU-Berlin

P-22 A comparison of default-mode connectivity in children with ADHD, dysthymic disorder and typically developing children

Veronika Vilgis[1], Alasdair Vance[2], Charles Malpas[1], Timothy Silk[1]

[1]Murdoch Childrens Research Institute, [2]University of Melbourne

P-23 Early high hormone levels in pubertal girls with MDD associated with depressive traits and resting connectivity

Eric Murphy[1], Deanna Barch[1], David Pagliaccio[2], Michael Gaffrey[1], Chad Sylvester[1], Joan Luby[1]

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

P-24 Effects of Stress on Bodily Freezing in Adolescents

Hannah Niermann[1], Bernd Figner[1], Anna Tyborowska[1], Antonius Cillessen[1], Karin Roelofs[1]

[1]Radboud University Nijmegen

P-25 Developmental trajectories of neural circuits supporting emotion regulation differ in adolescent depression

Kaja LeWinn[1], Irina Strigo[1], Colm Connolly[1], Tiffany Ho[1], Eva Henje Blom[1], Olga Tymofiyeva[1], Alan Simmons[2], Tony Yang[1]

[1]University of California, San Francisco, [2]University of California, San Diego

P-26 Using the dot-probe in field-based research on low-income childrens emotion regulation

Cybele Raver[1] [1]New York University

P-27 Development of the neural correlates of emotional interference in a verbal working memory task

Iroise Dumontheil[1], Kristen Lyons[2]

[1]Birkbeck, University of London, [2]Metropolitan State University of Denver

P-28 Working memory for emotional facial expressions and associations with child maltreatment.

Else-Marie Augusti[1], Annika Melinder[1]

[1]University of Oslo

P-29 Emotional expressions in young children and their primary caregivers in post-intervention institution

Maria Solodunova[1], Daria Chernego[1]

[1]St.Petersburg State University

P-30 Development of Infants in Association with Timing of Early Institutionalization

Daria Chernego[1], Maria Solodunova[1]

[1]Saint Petersburg State University

P-31 Auditory discrimination in sleeping preterm infants

Marina Vasilyeva[1]

[1]Sain-Petersburg State University

P-32 Attachment security is related to infants' neural processing of animated parent-child interactions

Szilvia Biro[1], Renske Huffmeijer[1], Mikko Peltola[2], Lenneke Alink[1], Marinus van IJzendoorn[1], Marian Bakermans-Kranenburg[1]

[1]Leiden University, [2]University of Tamepre

P-33 The impact of emotional facial expressions on auditory change perception in 8-month old infants

Silke Telkemeyer[1], Katja Liebal[2], Isabell Wartenburger[1]

[1]University of Potsdam, [2]Free University Berlin

P-34 Comparing the use of assumption-free and HRF models in the analysis of infant fNIRS data

Anne van der Kant[1], Szilvia Biro[1], Stephan Huijbregts[1], Claartje Levelt[1]

[1]Leiden University

P-35 Integrating neuroscience into developmental psychopathology: New frontiers in experimental preventive interventions

Christine O'Farrelly[1], Paul Ramchandani[1], Daphne Babalis[1], Marian Bakermans-Kranenburg[2], Sarah Byford[3], Julia McGinley[4], Susannah Murphy[5], Stephen Scott[3], Alan Stein[5], Marinus van IJzendoorn[2], Jane Warwick[6], Hilary Watt[1]

[1]Imperial College London, [2]Leiden University, [3]King's College London, [4]Netmums, [5]University of Oxford, [6]University of Warwick

P-36 Maternal risk status predicts autonomic nervous system reactivity and recovery in infants

Jill Suurland[1], Kristiaan Van der Heijden[1], Hanneke Smaling[1], Stephan Huijbregts[1], Stephanie Van Goozen[2], Hanna Swaab[1]

[1]Leiden University, [2]Cardiff University

P-37 Prenatal reflective functioning, postnatal maternal caregiving behavior and infant aggression.

Hanneke Smaling[1], Stephan Huijbregts[1], Jill Suurland[1], Kristiaan van der Heijden[1], Stephanie van Goozen[2], Hanna Swaab[1]

[1]Leiden University, [2]Cardiff University

P-38 Examining associations among prenatal stress, maternal antioxidant status, and temperament in 30-month-olds

Kaustubh Supekar[1], Srikanth Ryali[1], Vinod Menon[1]

[1]Stanford University School of Medicine

P-39 Rethinking my baby's needs – a functional emotion regulation strategy? Neural correlates of maternal affect regulation in response to infant stress signals

Hannah Behrendt[1], Kerstin Konrad[2], Christine Firk[2]

[1]University Hospital RWTH Aachen, [2]Klinik für Psychiatrie, Psychosomatik und Psychotherapie des Kindes- und Jugendalters, Uniklinikum R

P-40 Emotional Reactivity and Parenting Sensitivity Interact to Predict Cortisol Output in Toddlers

Clancy Blair[1]

[1]New York University

P-41 Risk, resiliency, and early child development: a community based study

Suzanne Tough[1], Sheila McDonald[1], Heather Kehler[1], Hamideh Bayrampour[1], Nonie Fraser-Lee[1]

[1]University of Calgary

P-42 Sleep Deprivation and Disturbances in Neural Functioning in Adolescence

Mona El-Sheikh[1], Jennifer Robinson[1], Stephen Erath[1], Kelly Tu[1], Lauren Kirby[1], Jerry Murphy[1]

[1]Auburn University

P-43 Rejection in Bargaining Situations: An Event-Related Potential Study in Adolescents and Adults

Kiki Zanolie[1], David de Cremer[2], Berna Guroglu[1], Eveline Crone[1]

[1]Leiden University, [2]Cambridge University

P-44 Control your Anger! The neural basis of aggression regulation following social rejection

Michelle Achterberg[1], Anna van Duijvenvoorde[1], Marian Bakermans-Kranenburg[1], Eveline Crone[1]

[1]Leiden University

P-45 Neural responses to social exclusion in adolescents: the influence of social status

Erik de Water[1], Gabry Mies[1], Ili Ma[1], Maarten Mennes[1], Antonius H Cillessen[1], Anouk Scheres[1]

[1]Radboud University Nijmegen

P-46 Neural and behavioral effects of social exclusion on decision quality in adolescents

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

[1]University of Oregon

P-47 Time-resolved analysis of delayed fMRI signal change during social evaluative feedback processing in the adolescent brain

Eefje Poppelaars[1], Bregtje Gunther Moor[1], Eveline Crone[1], Melle Van Der Molen[1]

[1]Leiden University

P-48 Longitudinal Links between Negative Family Relationships and Adolescent Cognitive Control-related Neural Processing

Ethan McCormick[1], Eva Telzer[1]

[1]University of Illinois

P-49 Development of Reward and Cognitive Control Connectivity using Group Iterative Multiple Model Estimation (GIMME)

Roisin White[1], David Lydon[1], Lawrence Lo[2], Beatriz Luna[2], Charles Geier[1]

[1]The Pennsylvania State University, [2]University of Pittsburgh

P-50 The Relationship between Inhibitory Control and Weight Status in Adolescents: A Pilot Study Incorporating fMRI, Behavioral Measures, and ad libitum Food Intake

Nicole Roberts[1], Jessica Braymiller[1], Charles Geier[1]

[1]The Pennsylvania State University

P-51 Risk-taking, perceived risks, and perceived benefits across adolescence: A domain-specific risk-return approach

Bernd Figner[1], Anna van Duijvenvoorde[2], Neeltje Blankenstein[2], Elke Weber[3]

[1]Radboud University, [2]Leiden University, [3]Columbia University

P-52 Evaluation of a Bayesian cognitive model for adolescent risky decision making in the Stop Light Game

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

[1]University of Oregon

P-53 Adolescent Risky Decision Making: Differential Strategies and Underlying Neural Substrates

Laura Dekkers[1], Anna van Duijvenvoorde[2], Wouter Weeda[3], Brenda Jansen[1], Hilde Huizenga[1]

[1]University of Amsterdam, [2]Leiden University, [3]Free University

P-54 Dealing with uncertainty: Risky and ambiguous decision making across development

Neeltje Blankenstein[1], Eveline Crone[1], Anna van Duijvenvoorde[1]

[1]Leiden University

P-55 The influence of social approval from peers on cognitive control during adolescence

Nikki Lee[1], Lydia Krabbendam[1]

[1]VU University Amsterdam

P-56 Positive and Negative Neural Feedback Processing of Risk Decisions Across Social Contexts in Adolescents

Jessica Flannery[1], Shannon Peake[2], John Flournoy[2], Sarah Alberti[2], Arian Mobasser[2], Phillip Fisher[2], Jennifer Pfeifer[2]

[1]University of Oregon, [2]Prevention Science Institute, University of Oregon

P-57 The neural correlates of prosocial behavior during observed exclusion in females

Mara van der Meulen[1], Marinus van IJzendoorn[1], Eveline Crone[1]

[1]Leiden University

P-58 Functional Specialization of the Right Temporo-Parietal Junction in Early Childhood

Dustin Moraczewski[1], Elizabeth Redcay[1]

[1]University of Maryland, College Park

P-59 Peer Influence on Prosocial Behavior in Adolescence: Using Adolescent Actors as Peers in an Experimental fMRI Study

Jorien van Hoorn[1], Eric van Dijk[1], Berna Guroglu[1], Eveline Crone[1]

[1]Leiden University

P-60 In the Mind of the Beholder: Preconscious cue detection and observed "micro love" within young adult romantic couples

Thomas Dishion[1], Emily Drake[1], Danielle Shore[1], Kaitlyn Panza[1], Thao Ha[1]

[1]Arizona State University

P-61 Is adolescence a sensitive period for face processing?

Delia Fuhrmann[1], Lisa Knoll[1], Ashok Sakhardande[1], Kathrin Cohen Kadosh[2], Maarten Speekenbrink[1], Sarah-Jayne Blakemore[1]

[1]University College London, [2]University of Oxford

P-62 Neural correlates of the development of the evaluation of social vs. non-social information during adolescence

Lucia Magis-Weinberg[1], Iroise Dumontheil[2], Ruud Custers[1], Sarah-Jayne Blakemore[1]

[1]University College London, [2]Birkbeck, University of London

P-63 To err is? social: The effects of oxytocin on performance monitoring in a social context

Margit Ruissen[1], Sina Radke[2], Ellen de Bruijn[1]

[1]Leiden University, [2]Universittsklinikum Aachen

P-64 Electrophysiological biomarkers of social anxiety: a comparison of right frontal alpha asymmetry and delta-beta cross-frequency correlation

Anita Harrewijn[1], Melle van der Molen[1], Michiel Westenberg[1]

[1]Leiden University

P-65 Neural control of social emotional actions in adolescence

Anna Tyborowska[1], Inge Volman[1], Sanny Smeekens[1], Ivan Toni[1], Karin Roelofs[1]

[1]Radboud University Nijmegen

P-66 Evaluating moral dilemmas: developmental changes and individual differences

Sandy Overgaauw[1], Eveline Crone[1]

[1]Leiden University

P-67 The BFF Context: Adolescents' Neural Response to Personally Relevant Social Reward in Relation to Depression and Real-Life Social Experiences

Erika Forbes[1], Luis Flores[1], Marigrace Ambrosia[1], Jennifer Silk[1]

[1]University of Pittsburgh

P-68 The High Risk Social Challenge as a measure of social functioning and social skills in typically developing children and children at risk for developing psychosis

Theresa Cheng[1], Sarah Hope Lincoln[2], Natalie Kleeman[2], Emily Holding[2], Isabel Metzger[2], Kasey Michel[2], Christine Hooker[2]

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

P-69 The behavioral and neurobiological effects of meeting adolescents' expectations

Kaitlyn Breiner[1], Adriana Galvan[1]

[1]UCLA

P-70 Developmental differences in the factors that regulate belief updating in dynamic environments

Ben Eppinger[1], Rasmus Bruckner[2], Matthew Nassar[3], Shu-Chen Li[1]

[1]TU Dresden, [2]Freie Universite Berlin, [3]Brown University

P-71 Neural activations during fairness decisions in response to emotions in boys with aggressive conduct disorder

Eduard Klapwijk[1], Gert-Jan Lelieveld[2], Moji Aghajani[1], Olivier Colins[1], Arne Popma[3], Nic van der Wee[4], Robert Vermeiren[1]

[1]Curium-Leiden University Medical Center, [2]Institute of Psychology, Leiden University, [3]VU University Medical Center, [4]Leiden University Medical Center

P-72 Effort discounting in children exposed to prenatal smoking

David Lydon[1], Nilam Ram[1], Charles Geier[1], Lisa Gatzke-Kopp[1]

[1]The Pennsylvania State University

Educational Neuroscience Symposium Oral Presentations

Sarah-Jayne Blakemore
University College London, UK

Sensitive periods of brain development and learning in adolescence

This talk focuses on sensitive periods of brain development and learning in human adolescence. In particular, I will discuss how the social brain, that is the network of brain regions involved in understanding others, develops during adolescence. Areas of the social brain undergo significant reorganisation in terms of structure and function during adolescence, which possibly reflects a sensitive period for adapting to the social environment. I will discuss the importance of taking into account the social environment and the social brain when considering adolescent-typical behaviour. In addition, I will discuss a recent study that investigated sensitive periods of cognitive development and learning during adolescence.

Bruce McCandliss
Stanford University, USA

Education and neuroscience in the early years of reading

When a child learns to read, changes occur in the circuitry of the brain that represent a new set of connections between vision and language. This general audience talk provides an overview of connections between human brain imaging and educational research in early literacy. By imaging the changes in brain circuitry that occur over the early years of literacy acquisition, we gain insights into questions about how learning experiences lead to changes in neural circuits, questions about why some children face challenges in making these changes, and questions about why some teachers and educational technologies might be particularly effective in addressing these challenges.

Lydia Krabbendam
VU University, Netherlands

Mindsets matter: how beliefs about the brain impact learning potential

The implicit beliefs that students hold about the nature of their abilities ("mindsets") influence their motivation and performance. Students with an "entity" mindset believe that their performance is fixed and cannot be improved much by effort, whereas students with an "incremental" mindset believe that they can increase their abilities by working harder. Similarly, teachers may approach students differently, depending on their own mindsets. Interestingly, knowledge about brain plasticity can stimulate an incremental mindset. In this talk, I will present two studies on the effects of mindsets in teachers and students, and discuss how this knowledge can be used in education.

Thursday, September 17

HUTTENLOCHER LECTURE

Developmental Cognitive Neuroscience: Progress and Prospects

Mark H Johnson, Centre for Brain & Cognitive Development, Birkbeck, University of London

I will begin with a personal history of developmental cognitive neuroscience, before turning to challenges that we currently face. The first challenge is the need for an overarching framework for interpreting large numbers of studies with different methodologies and participants. I will present one such framework: Interactive Specialisation. A second challenge is to develop new neuroimaging methods, and I will feature the opportunities presented to us by wearable technology. A third challenge is to apply the knowledge we have gained to practical applications. I will illustrate this with recent trials of interventions targeted at infants at-risk for developmental disorders.

Oral Session 1: Cognitive Developmental Trajectories I

O.1.1 Longitudinal Studies of Cognitive Maturation

Beatriz Luna, University of Pittsburgh, USA

Results of an accelerated longitudinal neuroimaging working memory (WM) study will be presented. fMRI ROI analyses indicated that WM is supported by prefrontal systems in childhood, response control systems in adolescence, and by systems supporting the modality specific content of working memory in adulthood. Analyses of brain states supporting WM processes revealed developmental reductions in whole-brain neural variability in maintenance and retrieval processes. Together, these studies suggest that the maturation of WM is supported by refinements in the recruitment of optimal systems that may emerge from the plasticity afforded by variability in brain function and behavior.

Dr. Bea Luna is the Staunton Professor of Psychiatry and Pediatrics, Professor of Psychology, and faculty at the Center for the Neural Basis of Cognition at the University of Pittsburgh. Her laboratory focuses on characterizing the brain changes that underlie cognitive development through adolescence into adulthood using longitudinal neuroimaging studies. Her studies use a neuroscience model by applying oculomotor tasks and using multimodal imaging approaches including fMRI, rsfMRI, DTI, and MEG. Her studies primarily focus on normative development but also atypical development including substance use and schizophrenia.

O.1.2 Structural brain development across adolescence: Patterns, plasticity and psychopathology

Nick Allen, University of Oregon, USA

Adolescence is a period of dramatic brain growth and reorganization, and is also a critical time for the emergence of mental and substance use disorders. In this presentation I will describe findings from a prospective, multi-wave study of adolescent brain development. Our findings suggest that the cortex does not uniformly thin across adolescence, that differential patterns of changes in the cortex are associated with emergence of particular risk or protective cognitive phenotypes, and that these patterns are sensitive to environmental influences. These findings therefore lay the groundwork for a developmental neurobiology of adolescent mental health and wellbeing.

Friday, September 18

Oral Session 2: NIRS Symposium: Using functional near-infrared spectroscopy (fNIRS) to study early brain development

O.2.1 The role of prosody in bootstrapping language acquisition: NIRS and NIRS-EEG co-recording studies with newborns

Judit Gervain, CNRS & Université Paris Descartes, France

Hearing is operational from the 20-28th week of gestation. Thus experience with the native language(s) start from birth. But speech heard in utero is different from boardcast speech transmitted in air, as maternal tissues filter speech at around 300-400Hz, suppressing fine details about individual sounds and only preserving the intonation and prosody of speech. In a series of NIRS and NIRS-EEG co-recording studies, we will explore how newborns perceive acoustic cues that carry speech prosody, such as intensity, pitch and duration. We will show that their perception of these cues is shaped by prenatal experience with the native language, whether they are mono- or bilingual. We will further show that they are able to use prosody to track speech and adapt to time-compress speech and to learn about word order.

O.2.2 Some Aspects of First Language Acquisition: Insights from Non-Invasive Optical Imaging (fNIRS) and EEG

Hellmuth Obrig, Max Planck Institute for Human Cognitive and Brain Sciences, Germany

Infants acquire language with a surprising speed and efficiency. This requires the extraction of regularities and meaning from the auditory stream of the native language, supplied by their environment. Prior to the acquisition of lexico-semantic and syntactic competence, infants are masters in extracting more basic regularities from the input. Some of these relate to the sound inventory of a given language including phonotactic regularities. These regularities ease segmentation of the auditory stream and later lexical access. Governing the potential combinations of sounds at different word positions phonotactic rules help to find word boundaries. In a number of experiments we have investigated how infants of different ages process native versus non-native phonotactic regularities. I will present studies in which we used fNIRS and /or EEG to elucidate the developmental path of phonotactic competence. Additionally I will present studies using NIRS looking at even more basic auditory feature processing and at some aspects of lexico-semantic learning, which are relevant much later in language development.

O.2.3 Using fNIRS to study infants at risk for compromised development

Sarah Lloyd-Fox, Centre for Brain and Cognitive Development, University of London, UK

The development of non-invasive brain imaging techniques over the last twenty years has led to an exponential growth in our understanding of brain function and structure. Critically, this knowledge has allowed a recent shift in the use of neuroimaging towards the study of the developing brain in situations where this development may be compromised in some way. Moreover, brain-imaging measurements can elicit responses that can be investigated across a wide range of populations, regardless of the culture or setting. Here I will review our recent work using Functional Near Infrared Spectroscopy (fNIRS) to study infants and children who may be at risk of compromised development. Firstly, I will discuss our use of a social visual and auditory paradigm to investigate functional brain responses in infants with a familial risk of developing ASD (Lloyd-Fox et al., 2013). Secondly, I will overview our recent work applying this paradigm to the study of infants who are at risk for compromised development due to under nutrition. To our knowledge this is the first functional neuroimaging research to be conducted in Africa (Lloyd-Fox et al., 2014), evidencing the versitility of fNIRS.

O.2.4 Using fNIRS to study asymmetric frontal cortical activity in infants

Renske Huffmeijer, Centre for Child and Family Studies, Leiden University, Netherlands

Asymmetric activity of frontal brain regions has been linked to emotional valence as well as to approach-withdrawal motivation. Greater activity of left compared to right frontal areas is associated with a tendency for positive emotionality and approach. Greater activity of the right than the left frontal cortex is associated with a tendency for negative emotionality and behavioral withdrawal. EEG is usually the method of choice to measure frontal asymmetry, both in adults and children (including infants). We use EEG measures to validate fNIRS measures of frontal asymmetry in infants.

Oral Session 3: Cognitive Developmental Trajectories II

O.3.1 Longitudinal brain development in adolescence

Eveline Crone, Leiden University, Netherlands

Prior neuroimaging studies suggested that adolescent brain development can be explained as an imbalance between the development of cortical and subcortical brain regions. This hypothesis was addressed in a longitudinal study (n=299) in which participants between ages 8-27 years were scanned twice, with a two year interval in between, while performing a cognitive control and a gambling task in the scanner. The neuroimaging results provide novel insight into the trajectories of brain development. The results further show that neuroimaging is a valuable method to predict educational outcomes (reading, arithmetic) as well as adolescent specific vulnerabilities (risk taking, alcohol consumption).

O.3.2 Risk and Resilience Predictors of Teenage Drug Use

Hugh Garavan, University of Vermont, USA

I will present data from the IMAGEN study, a longitudinal study of 2,000 teens assessed at ages 14, 16 and 19 (http://www.imagen-europe.com). All participants completed extensive phenotypic batteries including structural and functional neuroimaging assessing inhibitory control, reward and face processing and provided blood samples for genetic analyses. Machine learning approaches identify the variables from this multi-modal dataset that predict future drug use and we quantify the predictive accuracy using internal cross-validation. Separate analyses investigate cigarette, alcohol and cannabis use. We also identify the neurobiological characteristics of resilient teens who, despite lifetime adversity, have good academic, mental health and behavioral outcomes.

O.3.3 Longitudinal development of white matter microstructure and working memory across childhood

Christian Tamnes, University of Oslo, Norway

In two longitudinal diffusion tensor imaging (DTI) studies of healthy children between 4 and 11 years old, we used tract-based spatial statistics and probabilistic atlases to 1) investigate the patterns of change in DTI indices of white matter microstructure and 2) test the relationships between change in regional DTI indices and change in aspects of working memory. The results provide characterizations of the global, voxel-wise, tract-wise and slice-wise gradient patterns

of change in DTI indices and the influences of age, sex and hemisphere. We also show that DTI developmental changes in specific tracts relate to improvement in visuo-spatial working memory.

Oral Session 4: Training the Developing Brain

O.4.1 Real-time FMRI-based neurofeedback in the developing emotion regulation network

Kathrin Cohen Kadosh, University of Oxford, UK

Emotion regulation (ER) strategies emerge and stabilize in adolescence; in some adolescents, difficulties in ER are associated with persistent mental health problems. fMRI-based neurofeedback (NF) has been used to train ER networks in adults, however, its usefulness in influencing ER network plasticity during development remains unclear. Here, we used NF to teach a group of 7-16 year-olds to up-regulate the bilateral insula, a key ER region. All participants increased activation in this region across four sessions. Moreover our training differentially affected the functional connectivity in the regulation and rest network connections. These findings highlight the feasibility of using NF in adolescents, a crucial period for shaping key ER networks.

O.4.2 Eyetracking as a window into typical and atypical brain development

Silvia Bunge, University of California, Berkeley, USA

My goal for this talk is to illustrate ways in which eyetracking can be used to gain insights into human brain development and neurodevelopmental disorders. I will present results from a recent study of cognitive control in children with Tourette Syndrome, in which we used pupillary and eyeblink measures to make inferences about neurochemistry as well as the timing of engagement of cognitive control.

O.4.3 Developmental cognitive neuroscience of math learning: implications for interventions in learning disabilities

Vinod Menon, Stanford University, USA

In this talk I will describe recent progress in our understanding of brain and cognitive processes involved in children's math learning. I take a distinctly developmental perspective because neither the cognitive nor the brain processes involved in learning can be adequately understood outside the framework of how developmental processes unfold. I review basic neurocognitive processes involved in mathematical cognition emphasizing multiple brain systems and their developmentally specific roles. I will discuss neurodevelopmental models that go beyond parietal cortex regions involved in number processing, and demonstrate that brain systems and circuits in the developing child brain are not the same as those seen in more mature adult brains which are sculpted by years of learning. Critically, I will highlight new and unexpected evidence for a critical role for the hippocampal memory system in math learning in children. Finally, I will examine whether brain measures can be used to predict short-term learning and long-term skill acquisition in children. The implications of our findings for a more comprehensive view of the brain basis of learning and knowledge acquisition in typical development and children with learning disabilities will be discussed.

O.4.4 Struggling readers before and after reading intervention

Jessica Church, University of Texas, USA

I will discuss data from a neuroimaging study of 4th grade struggling readers from school districts in and around Austin and Houston, Texas. We have scanned children before (in early fall) and after (in late spring or summer) an intensive in-school reading intervention. We're particularly interested in how regions of the brain involved in attention relate to reading disorders, and thus have collected fMRI data on both reading and attention tasks. We take a functional network approach to exploring differences between "responders" and "non-responders" to the intervention, in addition to explorations between struggling and non-struggling readers.

Saturday, September 19

Oral Session 5: Methods

O.5.1 Connectotyping: a new way of analyzing functional neuroimaging data in typically and atypically developing individuals

Damien Fair, Oregon Health and Science University, USA

In recent work, we have used a graph theory with resting-state functional connectivity to characterize large-scale systems in the brain. We have also demonstrated that the same methodological tools that identify network phenomena in the brain, can assist in clarifying population heterogeneity, not only in children with mental disorders, but in typically developing children as well. Here we build on these prior findings by highlighting that traditional approaches to measuring the functional relationships between regions may not be optimal to distinguish population heterogeneity. We'll show how a new model based approach to characterizing the measured functional MRI signal (i.e. Connectotyping) may improve this ability.

O.5.2 Using fMRI to compare neural activity between groups: What do we need to be cautious about?

Julia Harris, University College London, UK

BOLD fMRI is commonly used to study differences in neuronal activity between human populations. As the BOLD response is an indirect measure of neuronal activity, meaningful interpretation of BOLD response differences between groups relies upon a stable relationship existing between neuronal activity and the BOLD response across these groups. However, this relationship can be altered by changes in neurovascular coupling or energy consumption, which could undermine the identification of differences in neuronal activity. I will examine the neurophysiological differences that may exist between control and patient populations, and across age groups. I will explore experimental approaches that could help attribute between-group differences in BOLD signals to either neuronal or neurovascular factors.

O.5.3 Multi-echo resting state across development

Monique Ernst, National Institute of Mental Health/ NIH, USA

Characterizing the typical development of brain organization is a crucial complement to task-based activation studies. We present resting state intrinsic functional connectivity (iFC) of the reward- and emotion-related circuitries in 51 healthy subjects (24 adolescents; 27 adults), using a state-of-the-art acquisition multi-echo sequence. This method significantly reduces physiological and motion artifacts, which have been plaguing iFC studies, particularly in children. Predictions were based on two premises. First, sensitivity to reward stimuli is thought to be heightened in youths vs. adults, suggesting higher iFC of the reward network in younger ages. Second, the top-down modulation of

somatovegetative and emotional processes increases with age, suggesting a strengthening of this circuitry (i.e., salience network) with increasing age. To test these hypotheses, we examined the modulation by age of whole-brain iFC of key nodes of the reward and salience networks, the ventral striatum and insula, respectively. Preliminary results are reported for the right lateralized seeds. The nucleus accumbens (MNI 9, 10, -11) showed significant iFC decrease with age to bilateral caudate, thalamus, and posterior cingulate. The insula (MNI 26, -4, 9) exhibited significant iFC decrease with age to putamen and superior temporal cortex, but also significant iFC increase with age to right DLPFC, bilateral DMPFC, and right inferior parietal. These findings are overall consistent with predictions, and they will be examined in association with behavioral characteristics.

O.5.4 Individual Differences in Functional Connectivity Dynamics Across Development: Implications for reward-processing

J. Bruce Morton, University of Western Ontario, Canada

Functional interactions between spatially distributed brain regions are highly dynamic (for review, see Hutchison et al., 2013). Over short timescales, whole-brain and regional patterns of functional connectivity change in marked ways as the brain cycles through a repertoire of meta-stable connectivity states. Although developmental (Hutchison & Morton, in press) and inter-individual variations (Kucyi & Davis, 2014) in inter-regional coupling dynamics have been predicted and empirically documented, the implications of these differences for cognition and behaviour remain poorly understood. The goal of the present investigation is to shed light on the psychological implications of dynamic coupling variability by examining whole-brain connectivity dynamics in a large sample of typically developing adolescents, and associating variability in these measures with differences in reward-related motivation and learning. fMRI volumes were collected from 299 8- to 25-yo participants while at rest and during the administration of a gambling task. Functional coupling dynamics were assessed at a whole-brain level using an ICA-based method, and within a circumscribed network comprised of reward-related striatal, ventromedial and dorsolateral frontal ROIs. Individual differences in motivation were assessed via BIS-BAS paper and pencil measures. Whole-brain dFC results reveal a repertoire of meta-stable connectivity states that are reproducible across subjects. Follow-up analyses examine links between state transition dynamics and differences in motivational characteristics and behaviour.

O.5.5 Functional Connectivity in Reward Circuitry Mediates Associations between Adolescent Cannabis Use and Age 22 Psychosocial Functioning

Erika Forbes, University of Pittsburgh, USA

Cannabis use is common among adolescents and predicts the development of affective problems and poor educational attainment, both of which could reflect disrupted motivation and reward processing. Few studies have examined how patterns of cannabis use across adolescence relate to neural reward circuitry and psychosocial adjustment in young adulthood. In a sample of 158 ethnically diverse, low-income, urban young men, we examined the association of adolescent cannabis use with functional connectivity of the nucleus accumbens in response to monetary reward at age 20. Cannabis use trajectory, recent frequency of use, and age of initiation were considered as developmental factors. Mediation analyses tested whether functional connectivity is a potential mechanism of the association between cannabis use and depression, anhedonia, and educational attainment at age 22. Individuals with escalating cannabis use across adolescence and those with greater current use displayed weaker functional connectivity between the nucleus accumbens and the medial prefrontal cortex/anterior cingulate cortex and a region of the basal ganglia/thalamus. This pattern of functional connectivity mediated associations between cannabis use in adolescence and anhedonia and low educational attainment at age 22, suggesting that reward circuitry may be a mechanism for the consequences of cannabis use. Early age of use onset was associated with stronger connectivity between the nucleus accumbens and a different set of cortical regions. Treatment efforts should consider course, current use, and development.

Oral Session 6: Critical Periods of Brain Development I

O.6.1 The Impact of Depression on the Trajectory of Brain Development During Critical Periods

Deanna Barch, Washington University, USA

Longitudinal studies of childhood have begun to map the normative pattern of gray matter development. Findings suggest critical periods during which there are patterns of rapid neurogenesis and related increases in gray matter volume in early childhood, peaking in early puberty followed by a process of selective elimination and volume loss. There has also been speculation, and some evidence, that this synaptic pruning-based volume decline may be related to experience dependent plasticity. We utilized data from a 15-year longitudinal study of early childhood depression (N=200) to ask whether depressive experiences during this critical period of brain development is associated with alterations in the trajectory of gray matter development in childhood or adolescence. In addition to annual behavioral data, 3 waves of neuroimaging during school age and early adolescence were obtained. Gray matter volume and thickness were obtained using FreeSurfer and analyzed using multi-level mixed models. The findings demonstrated marked increases in the rate of reductions in cortical gray volume and thickness related to early childhood depression severity. Children who experienced early childhood depression severity 2 SD's above the mean had reduction in gray matter volumes and thickness at almost twice the rate of those with no symptoms of depression in childhood. These findings provide the first neuroimaging data showing increases in rates of volume reduction and cortical thinning during the critical adolescent period of brain developed related to early childhood depression symptoms.

O.6.2 Charting the developmental trajectory of emotion regulation

Jennifer Silvers, Columbia University, USA

The ability to effectively manage our emotions is essential to the maintenance of both mental and physical well-being. And it is perhaps no more important than during childhood and adolescence, as an increasing variety of both tempting and vexing people and things vie for attention, consumption and response. What is the developmental trajectory of the brain mechanisms supporting the effective regulation of affective impulses - both appetitive and aversive? To address this issue, this presentation will describe two kinds of studies of reappraisal - a cognitive form of emotion regulation - in children, adolescents and young adults. The first concerns the appetitive domain, where children show stronger behavioral (i.e. craving) and brain (e.g. striatum) responses to food cues, they are as able to regulate them as are adults. The second concerns the aversive domain, where children and adults show equivalently strong behavioral (i.e. negative affect) and brain (e.g. amygdala) responses to unpleasant stimuli, with children showing lesser ability than adults to down-regulate them. These complementary patterns suggest that across child and adolescent development, affective responding and regulatory ability vary as a function of context. This pattern has important implications for both basic and translational models of regulatory mechanisms.

O.6.3 Puberty and drug abuse: Lessons from preclinical research

Miriam Schneider, Heidelberg University, Germany

Puberty comprises one of the most critical periods of brain maturation. Processes of neurodevelopment and reorganisation are

needed during this period for the occurrence of adult behavioral performance but simultaneously render the organism highly susceptible to perturbations. Many neuropsychiatric disorders have their onset specifically during this period and the initiation of substance abuse during puberty is associated with a higher risk for the emergence of addictive behaviors in later life. Results from our animal research confirm this heightened vulnerability towards drug abuse during puberty and indicate an important role for alterations in reward processing as well as maturational processes in reward-related neurocircuits and transmittersystems.

O.6.4 Human Amygdala-PFC Circuit Development and the Role of Caregiving

Nim Tottenham, Columbia University, USA

Reciprocal connections between the amygdala and medial prefrontal cortex (mPFC) support fundamental aspects of mature emotional behavior. However, this circuitry is slow to develop in humans, exhibiting an extended immaturity. Developmental fMRI/behavioral studies will describe age-related changes in amygdala-mPFC circuitry throughout childhood and adolescence and how they relate to emergent emotional behaviors. The argument will be made that development of this circuitry is intimately associated with caregiving, such that parental availability effectively scaffolds the circuitry during childhood and parental absence accelerates its development. These effects will be discussed in terms of potential sensitive periods of development.

Oral Session 7: Critical Periods of Brain Development II

O.7.1 A sensitive period for addiction prevention

Sue Andersen, McLean Hospital and Harvard Medical School, USA

Children rarely become addicted to stimulants, and stimulant exposure during this stage can actually reduce addiction risk in select populations. In contrast, adolescent stimulant exposure elevates lifelong addiction four-fold relative to exposure in adulthood. A sensitive period of reward programming, or a "switch" between protection and risk for addiction, maybe flipped during the transition between childhood and adolescence. The dopamine D1 receptor (D1R) within prelimbic prefrontal cortex may be that switch. D1R increases environmental salience, sensation-seeking and risk-taking, and is transiently and typically over-expressed during adolescence. Here, D1R or dsRed (a control protein) was over-expressed in juvenile rats. D1R increased risk-associated behaviors and social interactions, but reduced activity relative to dsRed. To test whether juvenile D1R over-expression could permanently elevate addiction risk, D1R was transiently over-expressed between 20-35 days of age and subjects were given cocaine (15 mg/kg; COC) or vehicle (VEH) in the presence of cues for 60 min. In adulthood, D1R+COC subjects had increased preferences to COC-associated contexts paired with these cues. However, self-administration during a 24-hour binge period was reduced in D1R+VEH, suggesting that the salience of the non-drug cues was programmed. D1R+COC, dsRed+VEH, and dsRed+COC groups self-administered near maximal amounts. These data suggest that juveniles with high-risk behaviors may have reduced addiction risk if exposed to a drug-free environment during this sensitive period.

O.7.2 Life Stress in Adolescence Predicts Reward-Related Functional Connectivity and Depressive Symptoms in Early Adulthood

Melynda Casement, University of Pittsburgh, USA

Background: Disrupted reward processing is a putative mechanism by which stressful life events contribute to depression, particularly during adolescence when reward-related circuitry is still developing. The present study evaluates whether stressful life events in adolescence predict reward-related functional connectivity between the nucleus accumbens (NA), which codes reward salience, and other reward-related circuitry. Method: Participants were 157 young men (38% Black, 55% White) from predominantly low-income families in the Pittsburgh Mother and Child Project. Participants completed life stress assessments annually from ages 15-18. They underwent fMRI using a monetary reward task and completed assessments of depression at age 20. Physiological interaction (PPI) analysis was used to evaluate the relationship between activity in the NA and other brain regions during reward trials compared to loss trials. Second level regression analyses were used to evaluate associations between cumulative adolescent stress, reward-related PPI, and symptoms of depression. Results: Greater life stress was associated with lower connectivity between the NA and medial prefrontal cortex (mPFC) during reward anticipation and reward feedback. Low NA-mPFC connectivity during reward anticipation was also associated with higher depressive symptoms. Conclusions: These results provide preliminary support for the hypothesis that an accumulation of life stressors during adolescence may increase depressive symptoms by altering coordination between the NA and other reward-related regions.

O.7.3 Mechanisms of Critical Period Brain Development

Takao Hensch, Harvard University, USA

Maturing neural circuits are dramatically shaped by the environment, but this plasticity declines with age, restricting approaches to improve adult brain function. Focusing on cellular/molecular mechanisms underlying these developmental trajectories across brain regions has identified specific events controlling the onset and closure of such critical periods. Maturation of specific GABA neurons triggers plasticity. Targeting these inhibitory circuits using pharmacological or genetic manipulations can either accelerate or delay onset. Instead, critical periods close as molecular brake-like factors emerge to stabilize adult networks. Lifting these brakes reopens windows of circuit rewiring during therapeutic settings and lifelong learning from mouse to man.

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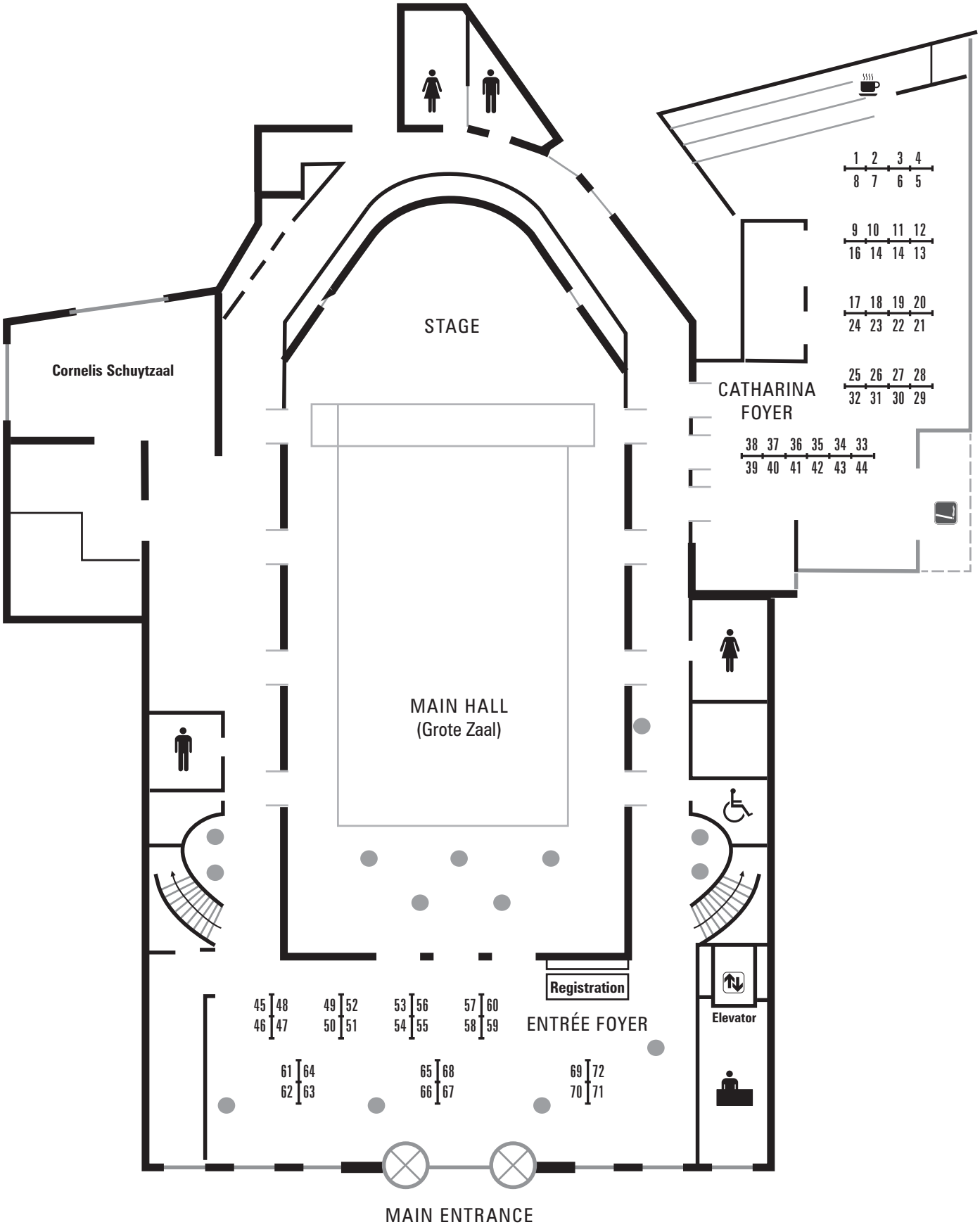

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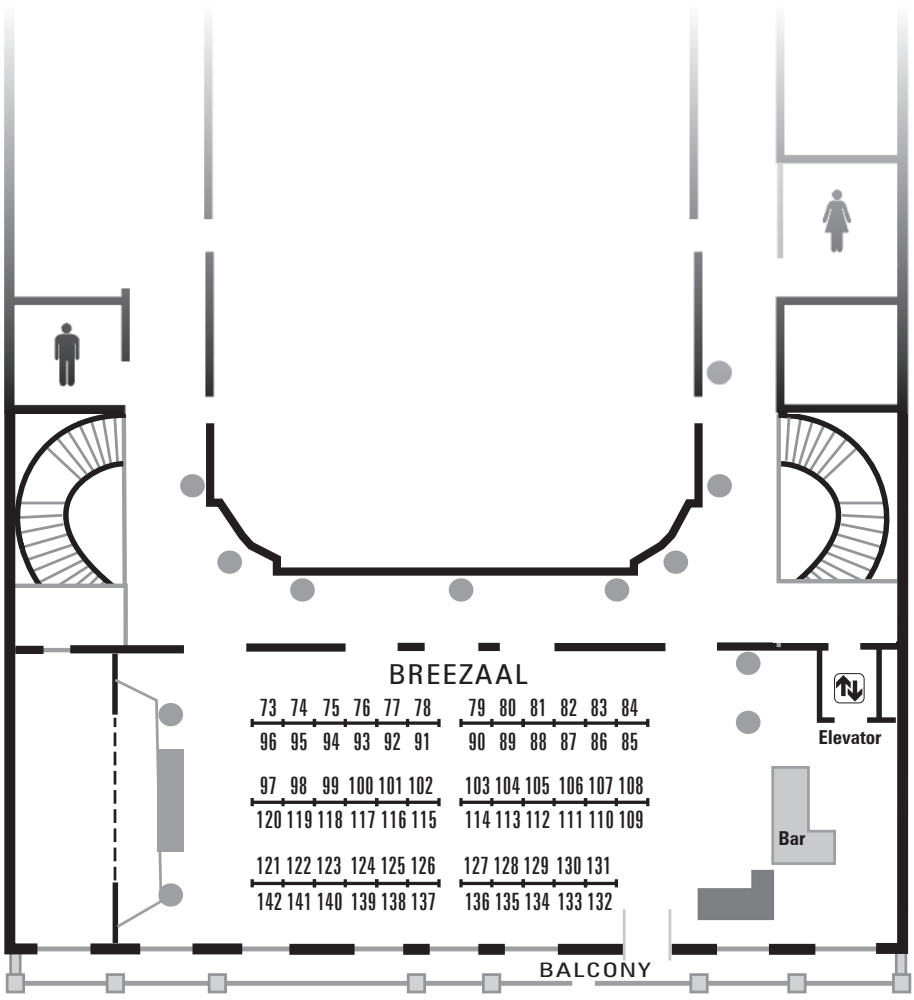

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Friday, September 18
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Poster board numbers work in the following way:
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Odd numbered posters will be presented during **Poster Session 1**, and **even numbered posters** will be presented during **Poster Session 2**. Location of individual poster boards indicated on poster board floor plan on pages 22 and 23.

All posters must be put up by 11:00 AM on Friday, September 18, and removed by 3:00 PM on Saturday, September 19.

Posters not removed by this time will be held at the Registration Desk until 5:00 PM.

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[1]University College London, [2]University of Southern California

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Joao Sato[1], Claudinei Biazoli[1], Euripedes Miguel[2], Luis Rohde[3], Andrea Jackowski[4], Rodrigo Bressan[4]

[1]Universidade Federal do ABC, [2]University of São Paulo, [3]Federal University of Rio Grande do Sul, [4]Federal University of Sao Paulo

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Sabine Peters[1], Anna Van Duijvenvoorde[1], Eveline Crone[1]

[1]Leiden University

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Simone Haller[1], Kathin Cohen Kadosh[1], Gaia Scerif[1], Jennifer Lau[2]

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

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Barbara Braams[1], Eveline Crone[1]

[1]Leiden University

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Hollis Karoly[1], Angela Bryan[1], Barbara Weiland[1], Andrew Mayer[2], Andrew Dodd[3], Sarah Feldstein Ewing[4]

[1]University of Colorado Boulder, [2]University of New Mexico, [3]The Mind Research Network, [4]Oregon Health and Science University

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[1]Primate Research Institute, Kyoto University, [2]Kumon Institute of Education Co., Ltd., [3]Institute of Development, Aging, and Cancer, Tohoku University

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Garvin Brod[1], Yee Lee Shing[1]

[1]Max Planck Institute for Human Development

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[1]Leiden University, [2]Leiden University Medical Center

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Sephira Ryman[1], Angela Bryan[2], Andrew Mayer[3], Josef Ling[3], Sarah Feldstein Ewing[1]

[1]University of New Mexico, [2]University of Colorado Boulder, [3]Mind Research Network

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Julia Leonard[1], Allyson Mackey[1], Amy Finn[1], John Gabrieli[1]

[1]Massachusetts Institute of Technology

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[1]Murdoch Childrens Research Institute, [2]University of Melbourne

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Christine Firk[1], Brigitte Dahmen[2], Christin Lehmann[1], Julia Koslwoski[1], Anke Niessen[1], Reinhild Schwarte[1], Kerstin Stich[2], Beate Herpertz-Dahlmann[1], Kerstin Konrad[1]

[1]University Hospital RWTH Aachen

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Annie Brookman[1], Denis Mareschal[1], Andy Tolmie[2], Iroise Dumontheil[1]

[1]Birkbeck, University of London, [2]UCL Institute of Education

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Federico Nemmi[1], Charlotte Nymberg[1], Elin Helander[1], Torkel Klingberg[1]

[1]Karolinska Institutet

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Hannah Behrendt[1], Kerstin Konrad[2], Christine Firk[2]

[1]University Hospital RWTH Aachen, [2]Klinik für Psychiatrie, Psychosomatik und Psychotherapie des Kindes- und Jugendalters, Uniklinikum R

P-1-17 The detection of intentionality in early psychosis

Anne-Kathrin Fett[1], Clara Gonzales-Berdugo[2], Esther Kooijmans[1], Imke Lemmers-Jansen[1], Sukhi Shergill[3], Lydia Krabbendam[1]

[1]VU University Amsterdam, [2]University of Deusto, [3]King's College London, Institute of Psychiatry

P-2-18 Control your Anger! The neural basis of aggression regulation following social rejection

Michelle Achterberg[1], Anna van Duijvenvoorde[1], Marian Bakermans-Kranenburg[1], Eveline Crone[1]

[1]Leiden University

P-1-19 Brain Activation upon Ideal-Body Media Exposure Followed by Peer Feedback in Late Adolescents

Jolanda Veldhuis[1], Mara van der Meulen[2], Barbara Braams[2], Sabine Peters[2], Elly Konijn[1], Eveline Crone[2]

[1]VU University Amsterdam, [2]Leiden University

P-2-20 The neural correlates of prosocial behavior during observed exclusion in females

Mara van der Meulen[1], Marinus van IJzendoorn[1], Eveline Crone[1]

[1]Leiden University

P-1-21 Specificity of connectivity-based sub-regions of the intraparietal sulcus for working memory, nonverbal reasoning, and mathematics

Margot Schel[1], Torkel Klingberg[1]

[1]Karolinska Institute

P-2-22 Is adolescence a sensitive period for learning numerosity discrimination?

Ashok Sakhardande[1], Delia Fuhrmann[1], Lisa Knoll[1], Maarten Speekenbrink[1], Sarah-Jayne Blakemore[1]

[1]Institute of Cognitive Neuroscience, UCL

P-1-23 Developmental fMRI of speech and voice perception: effects of task, age and phonological skills

Milene Bonte[1], Anke Ley[1], Elia Formisano[1]

[1]Maastricht University

P-2-24 Neural activations during fairness decisions in response to emotions in boys with aggressive conduct disorder

Eduard Klapwijk[1], Gert-Jan Lelieveld[2], Moji Aghajani[1], Olivier Colins[1], Arne Popma[3], Nic van der Wee[4], Robert Vermeiren[1]

[1]Curium-Leiden University Medical Center, [2]Institute of Psychology, Leiden University, [3]VU University Medical Center, [4]Leiden University Medical Center

P-1-25 Neural mechanisms underlying individual differences in temporal discounting of money and candy in adolescents

Erik de Water[1], Gabry Mies[1], Bernd Figner[1], Wouter van den Bos[2], Antonius H Cillessen[1], Anouk Scheres[1]

[1]Radboud University Nijmegen, [2]Max Planck Institute for Human Development

P-2-26 Neural responses to social exclusion in adolescents: the influence of social status

Erik de Water[1], Gabry Mies[1], Ili Ma[1], Maarten Mennes[1], Antonius H Cillessen[1], Anouk Scheres[1]

[1]Radboud University Nijmegen

P-1-27 Using a cursive font reduces executive cost in reading

Emmanuel Ahr[1], Olivier Houdé[1], Grégoire Borst[1]

[1]LaPsyDE

P-2-28 Brain Development of Irritability: fNIRS Investigations of Emotion and Executive Function in Preschool Children

Susan Perlman[1], Adam Grabell[1], Theodore Huppert[1]

[1]University of Pittsburgh

P-1-29 Neural correlates of delay aversion in ADHD

Jeroen Van Dessel[1], Sarah Morsink[1], Gabry Mies[1], Lana Tofec[1], Jurgen Lemiere[2], Jurgen Lemiere[2], Saskia Van der Oord[1], Saskia Van der Oord[1], Edmund Sonuga-Barke[3], Edmund Sonuga-Barke[3], Marina Danckaerts[1], Marina Danckaerts[1]

[1]KU Leuven, [2]UPC-KU Leuven, [3]University of Southampton

P-2-30 Mapping cerebral networks of inhibition and working memory during development: an fMRI meta-analysis of 1073 children and 1903 adolescents.

Cloélia Tissier[1], Grégoire Borst[2], Mathieu Cassoti[2], Sandrine Rossi[2], Olivier Houde[2], Arnaud Cachia[2]

[1]LaPsyDÉ, [2]University Paris Descartes

P-1-31 Rejection in Bargaining Situations: An Event-Related Potential Study in Adolescents and Adults

Kiki Zanolie[1], David de Cremer[2], Berna Güroglu[1], Eveline Crone[1]

[1]Leiden University, [2]Cambridge University

P-2-32 Discovering the neural underpinnings of social touch in infancy: a fNIRS study

Laura Pirazzoli[1], Mark Johnson[2], Teodora Gliga[2], Sarah Lloyd-Fox[2]

[1]CBCD Birkbeck College, [2]Centre for Brain and Cognitive Development, Birkbeck College

P-1-33 Functional Specialization of the Right Temporo-Parietal Junction in Early Childhood

Dustin Moraczewski[1], Elizabeth Redcay[2]

[1]University of Maryland, College Park, [2]University of Maryland - College Park

P-2-34 Behavioral and fMRI measures of risky decision making in adolescents with Neurofibromatosis type 1 (NF1)

Rachel Jonas[1], EunJi Roh[1], Caroline Montojo[1], Eliza Congdon[1], Laura Pacheco[1], Tena Rosser[2], Alcino Silva[1], Carrie Bearden[1]

[1]UCLA, [2]Children's Hospital of Los Angeles

P-1-35 ERPs and EEG oscillations reveal age differences and similarities in memory formation and retrieval of contextual details as well as increasing cognitive control

Daniela Czernochowski[1]

[1]TU Kaiserslautern

P-2-36 The development of brain network architecture

Lara Wierenga[1], Martijn van den Heuvel[1], Sarai van Dijk[1], Yvonne Rijks[1], Marcel de Reus[1], Sarah Durston[1]

[1]UMC Utrecht

P-1-37 Cognitive and socio-emotional factors in relation to school performance: a network approach

Wouter Weeda[1], Nikki Lee[2], Lourens Waldorp[3], Lydia Krabbendam[2], Mariette Huizinga[2]

[1]Leiden University, [2]VU University Amsterdam, [3]University of Amsterdam

P-2-38 Developmental differences in the factors that regulate belief updating in dynamic environments

Ben Eppinger[1], Rasmus Bruckner[2], Matthew Nassar[3], Shu-Chen Li[1]

[1]TU Dresden, [2]Freie Universität Berlin, [3]Brown University

P-1-39 Risk-taking, perceived risks, and perceived benefits across adolescence: A domain-specific risk-return approach

Bernd Figner[1], Anna van Duijvenvoorde[2], Neeltje Blankenstein[2], Elke Weber[3]

[1]Radboud University, [2]Leiden University, [3]Columbia University

P-2-40 Evidence for delayed fear extinction learning in the adolescent brain

Jayne Morriss[1], Anastasia Christakou[1], Carien van Reekum[1]

[1]University of Reading

P-1-41 The neural correlates of risky and ambiguous decision making during choice and feedback

Neeltje Blankenstein[1], Eveline Crone[1], Anna van Duijvenvoorde[1]

[1]Leiden University

P-2-42 Behavioral and neural correlates of delay and effort discounting in adolescents with ADHD

Gabry Mies[1], Ili Ma[1], Anouk Scheres[1]

[1]Radboud University Nijmegen

P-1-43 The development of observational learning: An ERP approach

Julia Rodriguez Buritica[1], Ben Eppinger[2], Nicolas Schuck[3], Hauke Heekeren[1], Shu-Chen Li[2]

[1]FU Berlin, [2]TU Dresden, [3]Princeton University

P-2-44 Training the creative adolescent brain: an fMRI training study on divergent thinking

Sietske Kleibeuker[1], Claire Stevenson[1], Laura Van der Aar[1], Sandy Overgauw[1], Anna van Duijvenvoorde[1], Eveline Crone[1]

[1]Leiden University

P-1-45 How motivation colours interference control in ADHD

Ili Ma[1], Gabry Mies[2], Anouk Scheres[1]

[1]Radboud University, [2]KU Leuven

P-2-46 Comparing the use of assumption-free and HRF models in the analysis of infant fNIRS data

Anne van der Kant[1], Szilvia Biro[1], Stephan Huijbregts[1], Claartje Levelt[1]

[1]Leiden University

P-1-47 Breaking the link between target detection and response initiation during adolescence

Birgit Mathes[1], Ksenia Khaleidovski[1], Annika Wienke[1], Benedicta Gyimah [1], Christina Schmiedt-Fehr[1]

[1]University of Bremen

P-2-48 The effect of symbolic and non-symbolic formats on arithmetic in children: an fMRI study

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

[1]KU Leuven

P-1-49 Peer Influence on Prosocial Behavior in Adolescence: Using Adolescent Actors as Peers in an Experimental fMRI Study

Jorien van Hoorn[1], Eric van Dijk[1], Berna Guroglu[1], Eveline Crone[1]

[1]Leiden University

P-2-50 Neonatal MRI is associated with future cognition and academic abilities in preterm children

Megan Spencer-Smith[1], Henrik Ullman[2], Deanne Thompson[3], Lex Doyle[4], Terrie Inder[5], Peter Anderson[3], Torkel Klingberg[2]

[1]Monash University, [2]Karolinska Institute, [3]Murdoch Childrens Research Institute, [4]The University of Melbourne, [5]Brigham and Women's Hospital

P-1-51 Adolescents show reduced cognitive interference in response to unpredictable cues

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

[1]Harvard University

P-2-52 Safety signal learning as a novel mechanism for fear reduction during development

Dylan Gee[1], Dominic Fareri[2], Christina Caldera[3], Bonnie Goff[3], Laurel Gabard-Durnam[2], Martin Monti[3], Tanja Jovanovic[4], BJ Casey[1], Nim Tottenham[2]

[1]Weill Cornell Medical College, [2]Columbia University, [3]UCLA, [4]Emory University

P-1-53 The behavioral and neurobiological effects of meeting adolescents' expectations

Kaitlyn Breiner[1], Adriana Galvan[1]

[1]UCLA

P-2-54 Positive emotions eliminate framing susceptibility in children

Marianne Habib[1], Gregoire Borst[2], Mathieu Cassotti[2]

[1]Paris University, [2]Paris Descartes University

P-2-56 Development of the neural correlates of emotional interference in a verbal working memory task

Iroise Dumontheil[1], Kristen Lyons[2]

[1]Birkbeck, University of London, [2]Metropolitan State University of Denver

P-1-57 Testing domain-generality of inhibition through an inter-tasks positive priming paradigm in school children and young adults

Adriano Linzarini[1], Olivier Houdé[2], Grégoire Borst[2]

[1]LaPsyDÉ, [2]Laboratory for the Psychology of Child Development and Education, CNRS Unit 8240

P-2-58 Resting-state changes after sub-acute pediatric arterial ischemic stroke: a descriptive case study

Salome Kornfeld[1], Juan Antonio Delgado Rodríguez[2], Sebastian Grunt[2], Regula Everts[2], Roland Wiest[3], Christian Weisstanner[3], Claus Kiefer[3], Maja Steinlin[2]

[1]University Hospital Bern, [2]Children's University Hospital, Inselspital, Bern, Switzerland, [3]University Hospital, Inselspital, Bern, Switzerland

P-1-59 Maturational trajectories of subcortical grey matter microstructure: A longitudinal study

Kathrine Skak Madsen[1], Terry Jernigan[2], Louise Baruël Johansen[1], Mark Lyksborg[3], Wesley Thompson[2], William Baaré[1]

[1]Copenhagen University Hospital Hvidovre, [2]University of California San Diego, [3]Technical University of Denmark

P-2-60 Neuroimaging and outcome of symptomatic neonatal arterial ischemic stroke in Switzerland

Manuela Wapp[1], Lea Mazenauer[2], Sarah Buerki[2], Christian Weisstanner[3], Luca Remonda[4], Maria Regenyi[2], Julia Pavlovic[2], Sebastian Grunt[2], Maja Steinlin[2]

[1]Inselspital Bern, [2]University Children's Hospital, Inselspital, [3]University Hospital, Inselspital, [4]Hospital Aarau

P-1-61 The Importance of Affective Contexts on the Role of the Anterior Insula during Adolescent Risk-Taking

Ashley Smith[1], Laurence Steinberg[1], Jason Chein[1]

[1]Temple University

P-2-62 Is adolescence a sensitive period for face processing?

Delia Fuhrmann[1], Lisa Knoll[1], Ashok Sakhardande[1], Kathrin Cohen Kadosh[2], Maarten Speekenbrink[1], Sarah-Jayne Blakemore[1]

[1]University College London, [2]University of Oxford

P-1-63 Is adolescence a sensitive period for relational reasoning?

Lisa Knoll[1], Delia Furhmann[1], Ashok Sakhardande[1], M Speekenbrink[1], Sarah-Jayne Blakemore[1]

[1]University College London

P-2-64 Does experience shape the brain? The effect of cataract on development of visual segmentation

Carlijn van den Boomen[1], Yvonne Koenraads[2], Saskia Imhof[2], Victor A.F. Lamme[3], Chantal Kemner[4]

[1]Utrecht University, [2]Department of Ophthalmology, University Medical Center Utrecht, The Netherlands, [3]Brain and Cognition, Department of Psychology, Faculty of Behavioral and Societal Sciences, [4]Utrecht University

P-1-65 The influence of mindset on math-related post-error adjustments in adolescents

Nienke van Atteveldt[1], Sandra van Aalderen-Smeets[2], Lydia Krabbendam[1]

[1]VU University Amsterdam, [2]University of Twente

P-2-66 Developmental Increases in Phase Synchrony Between Human Functional Brain Networks

Scott Marek[1], Kai Hwang[2], Avniel Ghuman[1], Beatriz Luna[1]

[1]University of Pittsburgh, [2]University of California Berkeley

P-1-67 Adolescent Risky Decision Making: Differential Strategies and Underlying Neural Substrates

Laura Dekkers[1], Anna van Duijvenvoorde[2], Wouter Weeda[3], Brenda Jansen[1], Hilde Huizenga[1]

[1]University of Amsterdam, [2]Leiden University, [3]Free University

P-2-68 The development of convergent corticostriatal structural connectivity during adolescence

Bart Larsen[1], Beatriz Luna[1]

[1]University of Pittsburgh

P-1-69 Test-retest reliability of infant ERPs evoked by faces

Nicolette Munsters[1], Carlijn van den Boomen[2], Heleen van Ravenswaaij[2], Chantal Kemner[3]

[1]UMC Utrecht, [2]Utrecht University, [3]University Medical Centre Utrecht; Utrecht University

P-2-70 When does an adolescent become an adult: The influence of emotion on the development of cognitive control

Alexandra Cohen[1], Kaitlyn Breiner[2], Danielle Dellarco[3], Aaron Heller[4], Gloria Pedersen[3], Marc Rudolph[5], Richard Bonnie[6], Kim Taylor-Thompson[7], Elizabeth Scott[8], Laurence Steinberg[9], Fair Damien[5], Adriana Galván[2], BJ Casey[3]

[1]Weill Cornell Graduate School of Medical Sciences, [2]University of California, Los Angeles, [3]Weill Cornell Medical College, [4]University of Miami, [5]Oregon Health & Science University, [6]University of Virginia, [7]New York University, [8]Columbia University, [9]Temple University

P-1-71 Genetic variation in endocannabinoid signaling impacts frequency of cannabis use

Danielle Dellarco[1], Alexandra Cohen[2], Camille Gregory [2], Charles Glatt[2], BJ Casey[2]

[1]Weill Cornell Medical College , [2]The Sackler Institute for Developmental Psychobiology

P-2-72 The role of magnitude and ordinal information in the formation of novel symbolic numerical representations

Rebecca Merkley[1], Andria Shimi[1], Gaia Scerif[1]

[1]University of Oxford

P-1-73 Early high hormone levels in pubertal girls with MDD associated with depressive traits and resting connectivity

Eric Murphy[1], Deanna Barch[1], David Pagliaccio[2], Michael Gaffrey[1], Chad Sylvester[1], Joan Luby[1]

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

P-2-74 The Relationship between Inhibitory Control and Weight Status in Adolescents: A Pilot Study Incorporating fMRI, Behavioral Measures, and ad libitum Food Intake

Nicole Roberts[1], Jessica Braymiller[1], Charles Geier[1]

[1]The Pennsylvania State University

P-1-75 The impact of type of examples and analogical reasoning on creativity in adolescents

Marianne Habib[1], Anaelle Camarda[2], Emmanuel Sander[3]

[1]Paris University, [2]Paris Descartes University, [3]University Paris

P-1-77 Variational Bayes hidden Markov modeling reveals atypical dynamic functional brain connectivity patterns associated with behavioral inflexibility in children with autism

Kaustubh Supekar[1], Srikanth Ryali[1], Vinod Menon[1]

[1]Stanford University School of Medicine

P-2-78 Different structure-function relationships in very preterm and term born children

Ines Mürner-Lavanchy[1], Maja Steinlin[2], Christian Rummel[2], Regula Everts[2]

[1]Children's University Hospital, [2]University Hospital Bern

P-1-79 Activation of prefrontal cortex during hierarchical rule learning in 8-month-old infants: data from near-infrared spectroscopy

Denise Werchan[1], Anne G. E. Collins[1], Michael Frank[1], Dima Amso[1]

[1]Brown University

P-2-80 How peer's choices and the information level regarding risk influence adolescent risk-taking engagement?

Mathieu Cassotti[1], Anaïs Osmont[2], Olivier Houdé[2]

[1]Paris Descartes University, [2]Paris Descartes university, LapsyDe

P-1-81 Friend versus foe? Neural correlates of fairness related decision-making in interactions with peers

Lisa Schreuders[1], Aafke Snelting[1], Sanny Smeekens[2], Antonius Cillessen[2], Berna Güroğlu[1]

[1]Leiden University, [2]Radboud University Nijmegen

P-2-82 Individual differences in spontaneous attentional processing of objects are related to conceptual development of number in preschoolers

Daniel Hyde[1], Ilaria Berteletti[1], Yi Mou[1]

[1]University of Illinois Urbana-Champaign

P-1-83 The relationship between pubertal status and neural activity in reward processing and cognitive control regions during risky decision-making

Anne-Lise Goddings[1], Emily Garrett[1], Iroise Dumontheil[2], Russell Viner[1], Sarah-Jayne Blakemore[1]

[1]University College London, [2]Birkbeck, University of London

P-2-84 Reduction of neural variability within cognitive and action systems supports developmental improvements in working memory performance

David Montez[1], Daniel Simmonds[1], Beatriz Luna[1]

[1]University of Pittsburgh

P-1-85 Age influences caudate activity in Social Mindful decisions

Imke Lemmers-Jansen[1], Lydia Krabbendam[2], Niels Van Doesum[2], Dick Veltman[3], Paul Van Lange[2]

[1]VU University, [2]VU, [3]VUmc

P-2-86 Conceptual development in Theory of Mind is reflected in emerging neural distinctions

Hilary Richardson[1], Jorie Koster-Hale[2], Mika Asaba[3], Natalia Velez-Alicea[3], Rebecca Saxe[1]

[1]MIT, [2]Harvard, [3]Stanford

P-1-87 Evaluation of a Bayesian cognitive model for adolescent risky decision making in the Stop Light Game

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

[1]University of Oregon

P-2-88 Neural and behavioral effects of social exclusion on decision quality in adolescents

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

[1]University of Oregon

P-1-89 Longitudinal changes in resting-state functional connectivity in depressed and anxious adolescents in relation to treatment

Bianca van den Bulk[1], Steven van der Werff[2], Moji Aghajani[2], Mandy Granettia, Natasja van Lang[2], Nic van der Wee[2], Serge Rombouts[2], Eveline Crone[1], Robert Vermeiren[2]

[1]Leiden University, [2]Leiden University Medical Center

P-2-90 Newborn amygdala connectivity: Implications for infant fear and cognitive development at 6-months

Alice Graham[1], Claudia Buss[2], Jerod Rasmussen[3], Marc Rudolph[1], John Gilmore[4], Martin Styner[5], Sonja Entringer[2], Pathik Wadhwa[3], Damien Fair[1]

[1]Oregon Health & Science University, [2]Charité University Medicine Berlin, [3]University of California Irvine, [4]University of North Carolina at Chapel Hill, [5]University of North Carolina School of Medicine

P-1-91 Puberty predicts inhibitory control improvements on an fMRI Go/No-go task across adolescence

Megan Herting[1], Chris Nuñez[1], Christina Chen[2], Prapti Gautam[2], Kristina Uban[1], Elizabeth Sowell[1]

[1]Children's Hospital Los Angeles, [2]University of Southern California

P-2-92 Associations between aerobic exercise and cortical brain structure in adolescent males

Megan Herting[1], Madison Keenan[1], Bonnie Nagel[2]

[1]Children's Hospital Los Angeles, [2]Oregon Health & Science University

P-1-93 Neural correlates of the development of the evaluation of social vs. non-social information during adolescence

Lucia Magis-Weinberg[1], Iroise Dumontheil[2], Ruud Custers[1], Sarah-Jayne Blakemore[1]

[1]University College London, [2]Birkbeck, University of London

P-2-94 Development of Reward and Cognitive Control Connectivity using Group Iterative Multiple Model Estimation (GIMME)

Roisin White[1], David Lydon[1], Lawrence Lo[1], Beatriz Luna[2], Charles Geier[1]

[1]The Pennsylvania State University, [2]University of Pittsburgh

P-1-95 Effort discounting in children exposed to prenatal smoking

David Lydon[1], Nilam Ram[1], Charles Geier[1], Lisa Gatzke-Kopp[1]

[1]The Pennsylvania State University

P-2-96 Qualitative change in number processing upon learning to count

Daniel Hyde[1], Ilaria Berteletti[1], Yi Mou[1], Charline Simon[1]

[1]University of Illinois Urbana-Champaign

P-1-97 A multi-level analysis of brain networks underlying adolescent effortful control

Dominic Dwyer[1], Ben Harrison[2], Murat Yucel[3], Sarah Whittle[2], Andrew Zalesky[2], Christos Pantelis[2], Nicholas Allen[4], Alex Fornito[3]

[1]LMU, [2]The University of Melbourne, [3]Monash University, [4]University of Oregon

P-2-98 The influence of social approval from peers on cognitive control during adolescence

Nikki Lee[1], Lydia Krabbendam[1]

[1]VU University Amsterdam

P-1-99 Social distraction interacts with long-term memory and attentional orienting in visual search with complex scenes: an EEG study

Brianna Doherty[1], Alex Fraser[1], Anna Nobre[1], Gaia Scerif[1]

[1]University of Oxford

P-2-100 Positive and Negative Neural Feedback Processing of Risk Decisions Across Social Contexts in Adolescents

Jessica Flannery[1], Shannon Peake[2], John Flournoy[2], Sarah Alberti[2], Arian Mobasser[2], Phillip Fisher[2], Jennifer Pfeifer[2]

[1]University of Oregon, [2]Prevention Science Institute, University of Oregon

P-1-101 Structural development of the social brain and links with social cognition

Rosa Meuwese[1], Kathryn Mills[1], Anna van Duijvenvoorde[1], Eveline Crone[1], Berna Güroğlu[1]

[1]Leiden University

P-2-102 Neural correlates of social aggression in young children provoked by negative feedback in a social judgment task

Ilse van Wijk[1], Bianca van der Bulk[2], Renske Huffmeijer[2], Marian Bakermans-Kranenburg[2], Marinus van IJzendoorn[2]

[1]Leiden University, [2]Leiden Consortium on Individual Development, Leiden University

P-1-103 A longitudinal fMRI study of self-evaluation across adolescence

Danielle Cosme[1], Jordan Livingston[1], John Flournoy[1], John Mazziotta[2], Mirella Dapretto[2], Jennifer Pfeifer[1]

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

P-2-104 Individual differences in executive control and negative affect as they influence the ability to ignore emotionally distracting information in mid-adolescence

Marie Banich[1], Harry Smolker[2], Hannah Snyder[3], Jarrod Lewis-Peacock[4], Detre Godinez[3], Benjamin Hankin[3]

[1]University of Colorado Boulder, [2]University of Colorado - Boulder, [3]University of Denver, [4]University of Texas at Austin

P-1-105 Neural and behavioral responses to social media differ as a function of perceived peer endorsement in adolescence and emerging adulthood

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

[1]UCLA

P-2-106 Training related changes in the neural timing of letter-speech sound integration in dyslexic children

Gojko Zaric[1], Gorka Fraga González[2], Jurgen Tijms[3], Maurits van der Molen[2], Leo Blomert[1], Milene Bonte[1]

[1]Maastricht University, [2]University of Amsterdam, [3]IWAL Institute

P-1-107 White matter plasticity associated with working memory training in 6year old children

Sarah Short[1], Rachel Steiner[1], Barbara Goldman[1], Jingwen Zhang[1], John Gilmore[1]

[1]University of North Carolina at Chapel Hill

P-2-108 Neural Dysregulation and Rumination Explain the Link between Chronic Victimization and Depressive Symptoms

Michelle Miernicki[1], Karen Rudolph[1], Eva Telzer[1]

[1]University of Illinois

P-1-109 How does attentional control matter? Insights from developmental cognitive neuroscience

Gaia Scerif[1], Andria Shimi[1], Duncan Astle[2], Bo-Cheng Kuo, Anna Nobre[1]

[1]University of Oxford, [2]Medical Research Council

P-2-110 Differential Effects of Attentional Deficits on Language Acquisition: A Cross-syndrome Study

Dean D'Souza[1], Hana D'Souza[2], Mark Johnson[1], Teodora Gliga[1], Jeanne Guiraud[1], Annette Karmiloff-Smith[1]

[1]Birkbeck, University of London, [2]Goldsmiths, University of London

P-1-111 Investigating the development of facial mimicry in infancy using EMG

Carina de Klerk[1], Victoria Southgate[2]

[1]Centre for Brain and Cognitive Development, [2]Birkbeck College

P-2-112 Failing to break: age predicts increased reactivity to non-target stimuli

Michael Dreyfuss[1], Alisa Powers[1], Danielle Dellarco[1], Gloria Pedersen[1], BJ Casey[1]

[1]Weill Cornell Medical College

P-1-113 Differences In Fractional Anisotropy Between Tobacco-Using And Combined Marijuana-And Tobacco-Using High-Risk Youth

Rachel Thayer[1], Francesca Filbey[2], Angela Bryan[1], Sarah Feldstein Ewing[3]

[1]University of Colorado Boulder, [2]University of Texas Dallas, [3]University of New Mexico

P-2-114 Longitudinal Links between Negative Family Relationships and Adolescent Cognitive Control-related Neural Processing

Ethan McCormick[1], Eva Telzer[1]

[1]University of Illinois

P-1-115 High-stakes rewards and punishments induce "choking" behavior in adolescent reactive cognitive control: Behavioral evidence and frontostriatal mechanisms

Catherine Insel[1], Catherine Glenn[1], Erik Kastman[1], Stephanie Sasse[1], Megan Garrad[1], Matthew Nock[1], Leah Someville[1]

[1]Harvard University

P-2-116 Motivational aspects that lead to adherence to workshops Cognitive Stimulation

Cristiane Nogueira da Silva[1], Josiane Souza Pinto Alberte[1]

[1]Instituto de Psiquiatria da Universidade de Medicina da USP

P-1-117 Neural change following different memory training approaches in very preterm born children - a pilot study

Regula Everts[1], Ines Mürner-Lavanchy[2], Maja Steinlin[2]

[1]Frau, [2]Children's University Hospital

P-2-118 Learning without motivation? No role of intrinsic motivation on working memory training gains

Charlotte Nymberg[1], Megan Spencer-Smith[2], Torkel Klingberg[1]

[1]Karolinska Institutet, [2]Monash University

P-1-119 Social attention and affective arousal in response to emotion evoking video clips in young children with ASD

Gemma Zantinge-van den Boom[1]

[1]Leiden University

P-2-120 The association between chronic sleep reduction, white matter connections and impulsivity. An adolescent DTI study

Jiska Peper[1], Eveline Crone[1]

[1]Leiden University

P-1-121 Attachment security is related to infants' neural processing of animated parent-child interactions

Szilvia Biro[1], Renske Huffmeijer[1], Mikko Peltola[2], Lenneke Alink[1], Marinus van IJzendoorn[1], Marian Bakermans-Kranenburg[1]

[1]Leiden University, [2]University of Tamepre

P-2-122 Puberty, social comparison, and risky decisions in adolescent girls

Zdena Op de Macks[1], Silvia Bunge[2], Orly Bell[2], Lance Kriegsfeld[2], Andrew Kayser[3], Ronald Dahl[2]

[1]UC Berkeley, [2]University of California, Berkeley, [3]University of California, San Francisco

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Andrew Lynn[1], Dima Amso[1]

[1]Brown University

P-2-124 Electrophysiological biomarkers of social anxiety: a comparison of right frontal alpha asymmetry and delta-beta cross-frequency correlation

Anita Harrewijn[1], Melle van der Molen[1], Michiel Westenberg[1]

[1]Leiden University

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Renee Dijkhuis[1], Tim Ziermans[1], Emine Gurbuz[1], Wouter Staal[2], Hanna Swaab[1]

[1]Leiden University, [2]Karakter Child and Adolescent Psychiatry University Centre

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Tone Hermansen[1], Santeri Yrttiaho[2], Jukka Leppanen[2], Espen Røysamb[3], Annika Melinder[3]

[1]University of Oslo, [2]Univerisity of Tampere, [3]Univerisity of Oslo

P-1-127 Inhibition of the default mode network during performance of a verbal fluency task in preterm born adults

Chieh-En Jane Tseng[1], Seán Froudist-Walsh[2], Philip Brittain[2], Jasmin Kroll[2], Vjaceslavs Karolis[2], Marcello Tesse[2], Chiara Nosarti[2]

[1]King's College London, [2]King's College London, IOPPN

P-2-128 Neural correlates of working memory in children with agenesis of the corpus callosum

Vanessa Siffredi[1], Megan Spencer-Smith[2], Maarten Vaessen[1], Pierre Barrouillet[1], Richard Leventer[3], Vicki Anderson[1], Patrik Vuilleumier[1]

[1]University of Geneva, [2]Monash University, [3]Royal Children's Hospital

P-1-129 Effects of Stress on Bodily Freezing in Adolescents

Hannah Niermann[1], Bernd Figner[1], Anna Tyborowska[1], Antonius Cillessen[1], Karin Roelofs[1]

[1]Behavioural Science Institute, Donders Institute for Brain, Cognition and Behaviour, Radboud University Nijmegen

P-2-130 Developmental changes in the influence of COMT genotype on the processing of self-generated thought

Emma Kilford[1], Iroise Dumontheil[2], Sarah-Jayne Blakemore[1]

[1]University College London, [2]Birkbeck, University of London

P-1-131 Neural oscillatory dynamics of social evaluative feedback processing in women

Melle van der Molen[1], Laura Dekkers[2], P. Michiel Westenberg[1], Freddy van der Veen[3], Maurits van der Molen[2]

[1]Leiden University, [2]University of Amsterdam, [3]Erasmus University Rotterdam

P-2-132 Investigating puberty in developmental MRI samples

Emily Garrett[1], Sarah-Jayne Blakemore[2], Russell Viner[3], Anne-Lise Goddings[3]

[1]UCL ICN, [2]Institute of Cognitive Neuroscience, [3]Institute of Child Health

P-1-133 Resting State Networks in Young Children with Developmental Delay: An Exploratory Pilot

Fred Sabb[1], Madison Long[1], Laura Lee McIntyre[1]

[1]University of Oregon

P-2-134 White matter tracts and memory abilities alterations following perinatal brain injury in adults who were born very preterm.

Chiara Caldinelli[1], Seán Froudist Walsh[1], Vjaceslavs Karolis[1], Chiara Nosarti[1]

[1]Kings College London

P-1-135 Auditory discrimination in sleeping preterm infants

Marina Vasilyeva[1]

[1]Sain-Petersburg State University

P-2-136 Neurodevelopmental indices of social cognition and their relations to social functioning

Cora Mukerji[1], Audrey Torricelli[1], Sarah Hope Lincoln[1], Natalie Kleeman[1], Mia Schulam[1], Christine Hooker[1], Charles Nelson[2]

[1]Harvard University, [2]Boston Children's Hospital, Harvard Medical School

P-1-137 Sensorimotor Integration in Typically Developing Children and Those with Autism

Stefanie Bodison[1], Megan Herting[2], Elizabeth Sowell[1]

[1]University of Southern California, [2]Children's Hospital Los Angeles

P-2-138 Time-resolved analysis of delayed fMRI signal change during social evaluative feedback processing in the adolescent brain

Eefje Poppelaars[1], Bregtje Gunther Moor[1], Eveline Crone[1], Melle Van Der Molen[1]

[1]Leiden University

P-1-139 Audiovisual speech perception in children with and without a history of otitis media

Margriet Groen[1], Alexandra Jesse[2]

[1]Radboud University, [2]University of Massachusetts

P-2-140 Predictors of individual growth rates in mathematics achievement

Iro Xenidou-Dervou[1], Hans van Luit[2], Evelyn Kroesbergen[2], Ilona Friso-van den Bos[2], Lisa Jonkman[3], Menno van der Schoot[1], Ernest van Lieshout[1]

[1]VU University Amsterdam, [2]Utrecht University, [3]Maastricht University

P-1-141 Neural control of social emotional actions in adolescence

Anna Tyborowska[1], Inge Volman[1], Sanny Smeekens[1], Ivan Toni[1], Karin Roelofs[1]

[1]Radboud University Nijmegen

P-2-142 Resting state functional connectivity in amygdala-DMN regions and emotion processing in adults who were born very preterm

Chieh-En Jane Tseng[1], Chiara Papini[2], Thomas White[2], Philip Brittain[2], Seán Froudist-Walsh[2], Jasmin Kroll[2], Vyacheslav Karolis[2], Chiara Nosarti[2]

[1]King's College London, [2]King's College London, IOPPN

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www.individualdevelopment.nl

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