Whistler Scientific Workshop on Brain Functional Organization, Connectivity, and Behavior, March 1-4, 2020

Sunday, March 1
Noon – 6pm  Check-in
6:00 – 8:00pm Opening Reception and Poster Session

Monday, March 2
7:30 – 8:30a  Breakfast

Session 1  Brain Anatomy and Function: Moderator – Todd Constable
8:30 – 9:00a  Charlotte Murphy
Topographical neural gradients support unique modes of operation
9:00 – 9:30a  Casey Paquola
Towards a Multi-Scale Model of the Cortex
9:30 – 10:00a  Ann Sizemore-Blevins
Topological voids within the human cortex
10:00 – 10:30a Coffee
10:30 – 11:00a  Janine Bijsterbosch
Beyond connectivity: the role of spatial network topology in predicting behavior
11:00 - 11:30a  James Haxby
Hyperalignment reveals individual differences in information encoded in fine-scale
cortical topographies
11:30 - 12:00 Discussion: anatomy and function
Daniel Margulies, Alex Fornito, Todd Constable

12:00 – 4:30p  Break
4:30 – 5:00p  Coffee

Session 2  Brain and Behavior: Moderator - Dave O'Connor
5:00 – 5:30p  Chandra Sripada
When Interactions Attack: Controlling for Group x Phenotype Interactions in Predictive Modeling
5:30 – 6:00p Siyuan Gao
Combining data from multiple sources improves predictive modeling

6:00 - 6:30pm Joshua Vogelstein
The role of the connectome in achieving artificial general intelligence

6:30 – 8:00pm Poster reception

Tuesday, March 3

7:30 – 8:30a Breakfast

**Session 3** Dynamics Across Timescales: Moderator - Evelyn Lake, Monica Rosenberg

8:30 – 9:00a Valerio Zerbi
Combining fMRI with chemo- and optogenetics in the mouse to deconstruct brain network activity

9:00 – 9:30a Elizabeth Hillman
Exploring the neural basis of resting-state functional connectivity in awake mice

9:30 – 10:00a Evelyn Tang
The control of brain network dynamics across diverse scales of space and time

10:00 – 10:30a Coffee

10:30 – 11:00a Javier Gonzalez-Castillo
Cognitive correlates of resting dynamic functional connectivity

11:00 – 11:30a Aaron Kucyi
Electrophysiological dynamics of antagonistic brain networks

11:30 – 12:00 Adeel Razi
Dynamic causal models of brain function

12:00 – 4:30p Break

4:30 – 5:00p Coffee

**Session 4** Cross-modal integration and modeling: Moderator - Tamara Vanderwal, Emily Finn

5:00 – 5:30p Aurina Arnatkeviciute
Genetics of brain network hubs

5:30 – 6:00p Roselyne Chauvin
Integrating functional connectivity analyses across separate task domains using task potency
6:00 - 6:30p   Alain Dagher  
Using Connectomics to Model Neurodegenerative Diseases  
7:00 – 9:00p   Closing dinner  

Wednesday, March 4  
7:30 – 8:30a   Breakfast  

Session 5   Clinical applications and imaging across the lifespan: Moderators - Doris Floris, Bruce Pike  
8:30 – 9:00a   Stefan Fräessle  
Predicting individual clinical trajectories of depression with generative embedding  
9:00 – 9:30a   Signe Bray  
What can children’s connectomes tell us about brain development and behavior  
9:30 – 10:00a   Richard Bethlehem  
The New Normal: Modelling Atypical Brain Development  
10:00 – 10:30a  Coffee  
10:30 – 11:00a   Jessica Cohen  
Disrupted static and time-varying functional connectivity in children with ADHD  
11:00 – 11:30a   Xiaoping Hu  
Application of convolutional neural networks to rsfMRI data for individual identification and disease classification  
11:30 – 11:50a   Hal Blumenfeld  
Long-range network switch and impaired consciousness in focal temporal lobe seizures  
11:50 – 12:00 Wrap-up/Meeting adjourns  

Acknowledgements  

Organizing committee  
Jessica R. Cohen, Todd Constable, Michael Breakspear, Simon Eickoff, Emily Finn, Doris Floris, Alex Fornito, Xiaoping Hu, Daniel Margulies, Bruce Pike, Monica Rosenberg  

Remote and On-site Coordinator: Tricia Ginnetti  

Staff: Lesley Nadeau-Foti, Daniele Milano
Poster Presentation Titles/Authors

Sunday, March 1 & Monday, March 2, 2020


3. **Differentiated Effects of Normal Aging on Cortical Networks of Executive Functioning.** Lia Chen, Eve De Rosa.

4. **Functional Brain Networks Involved in Lexical Decision.** Samantha Tze Sum Wong, Vina M. Goghari, Nicole Sanford, Ryan Lim, Cameron Clark, Paul D. Metzak, Susan L. Rossell, Abhijit Chinchani, Mahesh Menon, Todd S. Woodward.


7. **Relating preoperative functional connectivity abnormalities in pain circuitry to outcome of surgical treatment for trigeminal neuralgia.** Hayden Danyluk, Stefan Lang, Tejas Sankar.

8. **Language deficits can be predicted from rs-fMRI anatomical ROI connectivity maps better than from functional ROI connectivity maps.** Daniel DiGiovanni, Danilo Bzdok, Denise Klein, Louis Collins.

9. **Using the connectome predictive modeling approach to predict age from distributed patterns of white matter fiber density and cross-section.** Dennis Dimond, Thijs Dhollander, Amanda Ip, Christiane S. Rohr, Ryann Tansey, Kirk Graff, Robert E. Smith, Catherine Lebel, Deborah Dewey, Alan Connelly, Signe Bray.


11. **Task activation and functional connectivity offer distinct insight into brain-behavior relationships.** Abigail Greene, Siyuan Gao, Stephanie Noble, Dustin Scheinost, R. Todd Constable.

13. **Implementation of a pre- and in-scan system to reduce head motion in pediatric participants with ASD.** Corey Horien, Scuddy Fontenelle IV, Kohrissa Joseph, Nicole Powell, Chaela Nutor, Diogo Fortes, Maurelle Butler, Kelly Powell, Deanna Macris, James McPartland, Fred R. Volkmar, Dustin Scheinost, Katarzyna Chawarska, R. Todd Constable.


15. **Connectome Predictive Modeling of Face-Name Associations in Mild Cognitive Impairment.** Michelle Karker, Scott Peltier, Allison Moll, Julia Laing, Benjamin Hampstead.

16. **Prediction from networks with node features with application to neuroimaging.** Daniel Kessler, Keith Levin, Elizaveta Levina.

17. **Simultaneous cortex-wide cell-type specific fluorescence Ca2+ imaging and whole-brain fMRI reveals relationships between cellular activity and the BOLD signal.** Evelyn MR Lake, Xinxin Ge, Xilin Shen, Peter Herman, Fahmeed Hyder, Dave O’Connor, Francesca Mandino, Dustin Scheinost, Xenophon Papademetris, Michael C Crair*, R Todd Constable*. *Supervised jointly.


22. **Predicting behavioral impairment using resting-state brain connectomes in older adults.** Scott Peltier, Bruno Giordani, Henry Paulson, Rachael Snyder, Benjamin Hampstead.

23. **Linear versus deep learning for 3D brain images.** Saige Rutherford, Mike Angstadt, Chandra Sripada.


26. Stability and similarity of the pediatric connectome as developmental measures. Tamara Vanderwal, Jeffrey Eilbott, Clare Kelly, Todd S. Woodward, Michael P. Milham, F. Xavier Castellanos.
