



WORKSHOP

Educational Neuroscience of Mathematics

Date 3rd – 4th October 2014
Location Eberhard Karls University of Tuebingen, Tuebingen, Germany
Lecture Hall, Schleichstr. 4, Department of Psychology

Workshop Topic

The development of number processing is studied by different scientific disciplines. Developmental trajectories are not only a matter of interest for developmental psychologists and educational scientists, but also for cognitive and educational neuroscientists. Due to the relevance of numerical competencies for scholastic success, neurocognitive mechanisms of numerical competencies are of major importance for educational research and practice. In recent years, the steadily growing international and interdisciplinary field of Educational Neuroscience has begun to create a bridge between these disciplines. Our aim is to address the international research community interested in the intersection between numerical cognition, educational neuroscience. The workshop is a satellite event of the KogWis 2014 "How Language and Behavior Constitute Cognition" (More Information), and it follows up last year's highly successive workshop on the topic: "Development of Numerical Processing and Language". Talks by leading researchers will give a broad overview of current research topics of the different disciplines as: numerical cognition, neuroscience and mathematical learning, neuroscientific foundations of basic numerical processes, numerical development, number sense, dyscalculia. Participants also get the opportunity to present their own work within a poster session.

Program 3rd October, 9 a.m. – 2 p.m. talks and 2 p.m. – 5 p.m. poster presentation.
4th October, 9 a.m. – 1 p.m. talks.

Speakers Joachim Engel, Martin H. Fischer, Anja Ischebeck,
Karin Kucian, Vinod Menon, Andreas Nieder,
Hans-Christoph Nuerk, Pierre Pica, Bert Reynvoet.

Registration Registration is open until 20th September, at https://www.socisurvey.de/workshop_registration.

Poster Presentation If you would like to present a poster, please submit an abstract. Selected abstracts for poster presentation will be announced before the workshop as the number of places is limited.

Costs There is no conference fee.

Contact If you have any questions or for further information feel free to contact at:
educational.neuroscience@psycho.uni-tuebingen.de

Organization Hans-Christoph Nuerk, Martin H. Fischer, Thomas Dresler, Christina Artemenko, Julia Bahnmueller, Gabriella Daróczy, Mojtaba Soltanlou.



Program

Friday, 3rd October 2014

08:30 – 09:00 *Registration, Information and Putting up Posters*
09:00 – 09:15 *Welcome*

Cognitive Foundations of Mathematical Learning and Development

09:15 – 10:00 **Hans-Christoph Nuerk**
“Differentiating Multiple Number-Space Associations”
10:00 – 10:45 **Martin Fischer**
“Signatures of Embodiment in Number Processing”
10:45 – 11:15 *Coffee break*

Neural Foundations of Arithmetic Learning and Disorders

11:15 – 12:00 **Anja Ischebeck**
“Processing fractions and proportions: When the whole is more than the sum of its parts”
12:00 – 12:45 **Karin Kucian**
“Dyscalculia and the Brain”
12:45 – 14:00 *Lunch break*

Poster Sessions: Educational Neuroscience of Mathematics

14:00 – 15:30 **Poster session A**
15:30 – 16:00 *Coffee break*
16:00 – 17:30 **Poster session B**

Evening Keynote Lecture

17:30 – 18:15 **Vinod Menon**
“The role of memory systems in children’s math learning”
18:15 – 18:30 *General Discussion*
19:30 *Dinner*

Saturday, 4th October 2014

Mathematical Education and Interventions

09:00 – 09:45 **Bert Reynvoet**
“From Cognitive Development to Tablet Interventions”
09:45 – 10:30 **Joachim Engel**
“On Misconceptions about Randomness: Mathematics Instruction and the Longing for Certainty”
10:30 – 11:00 *Coffee break*

Basic underlying mechanisms

11:00 – 11:45 **Andreas Nieder**
“Neurobiological Foundations of the Number Sense”
11:45 – 12:30 **Pierre Pica**
“On the Computational Character of the Approximate Number System”
12:30 – 13:00 *Final Discussion*