



FONDATION HUGOT DU COLLÈGE DE FRANCE  
11, RUE DE L'UNIVERSITÉ, 75007 PARIS



## *Space, Time, and Number: Cerebral Foundations of Mathematical Intuitions*

24th *Attention & Performance* meeting

Stanislas Dehaene, Collège de France, Paris  
Elizabeth Brannon, Duke University, USA

### Schedule

#### Tuesday, July 6<sup>th</sup>

##### Arrival in the afternoon

**6:30 pm:** Introduction to the meeting by Liz and Stan

**Association lecture:** Randy Gallistel (USA): *Mental Magnitudes*

#### Wednesday, July 7<sup>th</sup>

Morning (9-13)

##### **Number**

David Burr (Italy): *A Visual Sense of Number*

Andreas Nieder (Germany): *The Neural Code for Number*

Liz Brannon (USA): *The Approximate Number System and the Computations it Supports as Evidenced from a Non-human Primate Model*

Lisa Feigenson (USA): *Working Memory and Numerical Representations*

Manuela Piazza (Italy): *Neurocognitive Start-up Tools for Symbolic Number Representations*

Afternoon (16-19)

##### **The coding of space**

Edvard Moser (Norway): *Neural Mechanisms for Mapping of the Spatial Environment*

Neil Burgess (UK): *Neuronal Membrane Potential Oscillations Naturally Produce Theta-Phase Codes for Distance, Location and Quantity.*

Ehud Zohary (Israel): *The Search for Spatiotopic Representations in the Human Visual Pathways*

General discussion: similarities and differences between space and number

Evening: Poster session 1

## **Thursday, July 8<sup>th</sup>**

Morning (8:30-11:30)

### **The coding of time**

Dean Buonomano (USA): *Population Clocks: Encoding Time in the Dynamics of Recurrent Neural Networks.*

Jennifer Coull (France): *Neuroanatomical Dissociation between Feedforward and Feedback mechanisms of temporal prediction*

Concetta Morrone (Italy): *Illusions of Time: Space-time Relativity in the Brain?*

Lera Boroditsky (USA): *Using Space to Think about Time Across Languages and Cultures*

11:30 pm-13:00 pm: Poster session 2 + coffee

Afternoon: Excursion and dinner

2:30 bus to Port Royal

5:00 pm bus to NeuroSpin

6:30 bus to Dampierre Castle and Banquet

## **Friday, July 9<sup>th</sup>**

Morning (9-13)

### **Evolutionary origins**

Giorgio Vallortigara (Italy): *The Origins of the Sense of Space and Number in Animals*

Daniel Haun (Germany): *Reading the Mind of the Common Ancestor: Cognition of Space, Time and Number in Great Apes*

Véronique Izard (France): *Sensitivity to Geometry in Visual Shapes is Universal, but not Innate*

Nicola Clayton (UK): *The Evolution and Development of Mental Time Travel*

Afternoon (16-19)

### **Cross-modal interactions and cross-dimensional metaphors**

Yves Rossetti (France): *Neglect in the Numerical, Spatial and Time Domains*

Patrick Cavanagh (France): *Spatial Attention and Errors of Location*

Roi Cohen Kadosh (UK): *Synaesthesia: Gluing Number, Space, and Time*

Wim Fias (Belgium): *How is Space Associated with Number? The Role of Working Memory*

General Discussion: origins of cross-dimensional interactions (moderator: Marco Zorzi)

Evening: Piano night -- Jay Gottlieb improvises on "Surprise"

## **Saturday, July 10<sup>th</sup>**

Morning (9-12:3)

### **Development, education and representational change**

Stella Lourenco (USA): *Developmental Origins and the Extent of Generalization in the Representation of Magnitude*

Robert Siegler (USA): *Improving Children's Numerical Knowledge: There's Nothing So Practical As a Good Theory*

Brian Butterworth (UK): *Numerical Development and Dyscalculia*

Elizabeth Spelke (USA): *Sources of Abstract Concepts: Natural Number and Natural Geometry*