



# ESF Research Conferences

A Programme of the European Science Foundation

## Brain Development and Cognition in Human Infants From Action to Cognition

Acquafredda di Maratea (near Naples), Italy, 1-6 October 2005

Chair: **Claes von Hofsten** (University of Uppsala, SE)

Vice-Chair: **Janette Atkinson** (University of London, UK)

With support from the EU Integrated Project Robot-cub, Cogsys and the Basilicata Region.



### Preliminary Programme

On line at: <http://www.esf.org/conferences/mc05118>

The origins of knowledge and how it develops in the growing child is the topic of this conference. Piaget proposed that intelligence develops out of action, and even if the answer is not as straightforward as he proposed, it reflects a deep insight into the developmental processes. Activity is at the very core of development from the principles that underlie the early structuring of the brain to the processes that enable us to represent and reflect on the world and plan our actions on it. The conference will be divided up into several different topics including: the structuring of the brain, the early development of perception and action and cognition in children and primates, the development of perception and cognition in deviant populations, and development in artificial systems. In addition to invited lectures, there will also be posters and plenty of possibilities to discuss developmental issues.

#### Saturday 1 October

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Late afternoon /  
early evening      Registration at the hotel reception and ESF desk

19.00                **Welcome drink**

20.00                Dinner

## Sunday 2 October

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### Session 1: The Structuring of the Brain

- 08.30 Conference Opening
- 09.00 **Mark H. Johnson** (Birkbeck College, London, UK)  
*General perspectives on human postnatal functional brain development*
- 09.40 Discussion
- 10.00 **Giorgio Maria Innocenti** (Karolinska Institute, Stockholm, SE)  
*From subcortical to cortical processes*
- 10.40 Discussion
- 11.00 Coffee break
- 11.30 **Luciano Fadiga** (University of Ferrara, IT)  
*Mirror neurons*
- 12.10 Discussion
- 13.00 Lunch

### Session 2: Establishing Modes of Action

- 15.30 Coffee break
- 16.00 **Kerstin Rosander** (Uppsala University, SE)  
*Visual tracking and its relationship to cortical development*
- 16.40 Discussion
- 17.00 **Geert Savelsbergh** (Free University Amsterdam, NL)  
*Reaching for and catching objects*
- 17.40 Discussion
- 18.00 **Karen Adolph** (New York University, US)  
*Development of locomotion*
- 18.40 Discussion
- 19.30 Dinner
- 21.00 Poster session

## Monday 3 October

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### Session 3: Action Related Perception

- 08.30 **Richard Aslin** (Rochester University, US)  
*Finding structure in events*
- 09.10 Discussion
- 09.30 **Rachel Keen** (University of Massachusetts, Amherst, US)  
*Emergence of action plans*
- 10.10 Discussion
- 10.30 Coffee break

- 11.00 **Oliver Braddick** (Oxford University, UK)  
*Global processing as a basis for infants' understanding of objects*
- 11.40 Discussion
- 12.00 **Poster session**
- 13.00 Lunch

#### **Session 4: Cognitive Development**

- 15.30 Coffee break
- 16.00 **Elizabeth Spelke** (Harvard University, Cambridge, US)  
*Origins of knowledge of Newtonian physics*
- 16.40 Discussion
- 17.00 **Gustaf Gredebäck** (Uppsala University, SE)  
*Perception of occlusion*
- 17.40 Discussion
- 18.00 **György Gergely** (Academy of Sciences, Budapest, HU)  
*Infants' understanding of causal relations*
- 18.40 Discussion
- 19.30 Dinner
- 21.00 **Poster session**

#### **Tuesday 4 October**

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#### **Session 5: Development of Social Cognition**

- 08.30 **Teresa Farroni** (Birkbeck College, London, UK)  
*Development of face perception.*
- 09.10 Discussion
- 09.30 **Joseph Call** (Max-Planck-Institute, Leipzig, DE)  
*Perception of social information in chimpanzees and dogs*
- 10.10 Discussion
- 10.30 Coffee break
- 10.40 **Petra Hauf** (Max-Planck-Institute, Munich, DE)  
*Infants' perception of intentional actions*
- 11.20 Discussion
- 11.40 **Gergely Csibra** (Birkbeck College, London, UK)  
*Infants' understanding of social events*
- 12.20 Discussion
- 13.00 Lunch
- 14.00 **Half-day excursion**
- 20.00 **Conference Dinner**

## Wednesday 5 October

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### Session 6: Development in Deviant Populations

- 08.30 **Janette Atkinson** (University College London, UK)  
*Perinatal brain damage and cognitive development*
- 09.10 Discussion
- 09.30 **Daphne Maurer** (McMaster University, Hamilton, CA)  
*Effects of early visual deprivation on perceptual and cognitive development*
- 10.10 Discussion
- 10.30 Coffee break
- 11.00 **Annette Karmiloff Smith** (Inst. of Child Health, University College London, UK)  
*Neurocomputational constraints induced by developmental disorders*
- 11.40 Discussion
- 12.30 Lunch

### Session 7: Development in Artificial Systems

- 15.30 Coffee break
- 16.00 **Guilio Sandini** (University of Genoa, IT)  
*Baby robots*
- 16.40 Discussion
- 17.00 **Yasuo Kuniyoshi** (Tokyo University, JP)  
*Towards emergence and development of humanoid embodied cognition - a robotic approach*
- 17.40 Discussion
- 18.00 **Hideki Kozima** (NICT Kyoto, JP)  
*Children-robot interaction*
- 18.40 Discussion
- 19.30 Dinner
- 21.00 **Special discussion about the future of the conference series**

## Thursday 6 October

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Breakfast and departure