



ACCADEMIA NAZIONALE DEI LINCEI  
CENTRO LINCEO INTERDISCIPLINARE  
«BENIAMINO SEGRE»

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INTERNATIONAL CONFERENCE

# HANDEDNESS FACTS: FROM EVOLUTION TO NEUROSCIENCE

4-5 APRIL 2017

*Organizing Committee:* Umberto CASTIELLO, Chiara BEGLIOMINI, Valentina PARMA

Despite the human hand has long been a motive of fascination, scientists are still struggling to explain the mechanisms regulating one of its seemingly simple features, namely handedness. Capitalizing on the similarities between human handedness and the left- or right-side preferences exhibited by other creatures in the animal kingdom what stands out is that for humanity the distribution of preference and performance is dramatically shifted to the right. By featuring a group of world-class and young scientists approaching the investigation of handedness, this workshop aims at discussing the phylogenetic, ontogenetic, psychological and neural processes underlying human handedness, as to propose a unitary framework on the topic.

## PROGRAMME

### Tuesday, 4 April

- 11.30 Mario STEFANINI (Direttore del Centro Linceo, Roma): Director's welcome  
11.45 Umberto CASTIELLO (Università di Padova): Organizer's introduction

### Keynote 1

- 12.00 Colwyn TREVARTHEN (University of Edinburgh): *The advantages of handedness for intricate manipulations, and for expressing interests and feelings*  
13.00 Umberto CASTIELLO (Università di Padova): Discussion

### Session 1 - Animal models of laterality

- 14.45 William HOPKINS (Georgia State University, Atlanta): Introduction  
14.50 Joel ROTHMAN (University of California, Santa Barbara): *Multiplicity of left-right symmetry breaks in a simple animal: quantitative genetics of handedness and heterotaxy in C. elegans*  
15.20 Jeremy NIVEN (University of Sussex): *Lateralisation in insects: insights into the evolution of handedness*  
15.50 Angelo BISAZZA (Università di Padova): *Individual differences in fish laterality. Causes and consequences*  
16.20 William HOPKINS (Georgia State University, Atlanta): Discussion  
16.40 Coffee break

### Keynote 2

- 17.00 William HOPKINS (Georgia State University, Atlanta): *Neural correlates of hand preference and skill in primates with a special emphasis on chimpanzees*  
18.00 Umberto CASTIELLO (Università di Padova): Discussion

## Wednesday, 5 April

9.30 Chiara BEGLIOMINI (Università di Padova): Introduction

### Session 2 - *Human handedness: behavioral, neural and genetic underpinnings*

9.45 Jody CULHAM (Western University, London, Ontario CA): Introduction

9.50 Valentina PARMA (SISSA, Trieste): *The origin of human handedness and its role in pre-birth motor control*

10.10 Sanja BUDISAVLJEVIC (Università di Padova): *Handedness and white matter networks*

10.30 Clyde FRANCK (Max-Planck-Institut, Nijmegen): *Genetics, handedness and brain laterality*

10.50 Jody CULHAM (Western University, London, Ontario): Discussion

11.10 Coffee break

### Keynote 3

11.30 Jody CULHAM (Western University, London, Ontario): *How does the human brain process hand and tool actions?*

12.30 Umberto CASTIELLO (Università di Padova): Discussion

### Session 3 - *Cognitive and evolutionary aspects of handedness*

14.45 Chris MCMANUS (University College London): Introduction

14.50 Daniel CASASANTO (University of Chicago): *How the hands shape emotion in the brain and mind*

15.20 Hélène COCHET (Université de Toulouse): *Manipulating objects or communicating through gestures: considering manual asymmetries within a complex system*

15.50 Gillian FORRESTER (Birkbeck, University of London): *Hand dominance and the evolution of human cognition: a cross-species perspective*

16.20 Chris MCMANUS (University College London): Discussion

16.40 Coffee break

### Keynote 4

17.00 Chris MCMANUS (University College London): *The genetics and evolution of handedness and cerebral lateralisation*

18.00 Umberto CASTIELLO (Università di Padova): Discussion and closing remarks

ROMA - PALAZZO CORSINI - VIA DELLA LUNGARA, 10

*Il convegno è organizzato con il contributo del Dipartimento di Psicologia generale dell'Università di Padova*

*La partecipazione al convegno è libera. Si prega di segnalare la presenza*

Segreteria del convegno: piemontese@lincei.it - [www.lincei.it](http://www.lincei.it)

Fino alle ore 10 è possibile l'accesso da Lungotevere della Farnesina, 10