

12º SIMPÓSIO DA FUNDAÇÃO **Bial**

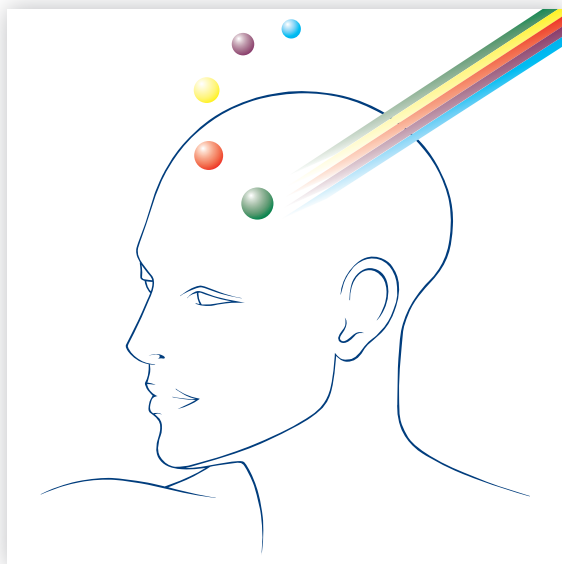
# AQUÉM E ALÉM DO CÉREBRO

## *BEHIND AND BEYOND THE BRAIN*

Casa do Médico - Porto

4 a 7 de abril de 2018

April 4 to 7, 2018



**Programa e Resumos das Comunicações | *Program and Abstracts***



12 SIMPÓSIO DA FUNDAÇÃO **Iberê**

# AQUÉM E ALÉM DO CÉREBRO

Casa do Médico - Porto • 4 a 7 de abril de 2018

## Programa | *Program*

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### 04.04 | quarta-feira | *Wednesday*

- 20:00-21:15 | Entrega de documentação | *Registration*
- 21:15-21:45 | Sessão de Abertura | *Opening Session (in Portuguese)*
- 21:45-22:30 | Conferência Inaugural | *Opening Conference*  
*Chairman* | **Axel Cleeremans**  
*Enhancing brain and cognition: A theory-driven approach*  
**Lorenza Colzato**

**1st session - Cognitive enhancement**

*Moderator* - **Rainer Goebel**

- 09:00-09:15 Abertura | *Opening remarks*
- 09:15-09:45 *Enhancing human cognition using noninvasive brain stimulation*  
**Alexander Sack**
- 09:50-10:20 *Cosmetic neurology: Ethical considerations and public attitudes*  
**Anjan Chatterjee**
- 10:25-10:55 *Cognitive enhancement and doping in sport*  
**Jean-Noël Missa**
- 11:00-11:30 Café, sessão de posters e contactos  
*Coffee, posters session and contacts with faculty*
- 11:30-12:15 Conferência | *Keynote lecture*  
*The neuroscience of working memory capacity and training*  
**Torkel Klingberg**
- 12:30-13:00 Discussão | *Morning Discussion*
- 13:00-14:30 Almoço | *Lunch*
- 14:30-15:30 Apresentações orais posters - Investigadores apoiados  
*Posters oral presentations - Grant holders*  
*Moderator* | **Mário Simões**
- 15:30-16:00 Café, sessão de posters e contactos  
*Coffee, posters session and contacts with faculty*
- 16:00-17:00 Cont.  
Apresentações orais posters - Investigadores apoiados  
*Posters oral presentations - Grant holders*

**2nd session - Amplified states of consciousness**

*Moderator - Caroline Watt*

- 09:00-09:15 | *Abertura | Opening remarks*
- 09:15-09:45 | *Derangement of the senses or alternate epistemological pathways?  
Research on alterations of consciousness and human potentials*  
**Etzel Cardeña**
- 09:50-10:20 | *Ayahuasca as a mind enhancer - its knowledge and potential*  
**Olga Silva, Mário Simões**
- 10:25-10:55 | *Enhancing the mind in Ancient Greece*  
**Yulia Ustinova**
- 11:00-11:30 | *Café, sessão de posters e contactos  
Coffee, posters session and contacts with faculty*
- 11:30-12:15 | *Conferência | Keynote lecture  
Regulation of attention and emotions by meditation: Neurophysiological basis  
and implications for mental and physical health*  
**Antoine Lutz**
- 12:30-13:00 | *Discussão | Morning Discussion*
- 13:00-14:30 | *Almoço | Lunch*
- 14:30-16:30 | *Parallel Workshops (W)*
- W 1 – Room Braga**  
*Wise plants*  
*Moderator | Mário Simões*  
*Invited discussants: Tania Re, Olga Silva*
- W 2 – Room Conferências**  
*Meditation*  
*Moderator | Etzel Cardeña*  
*Invited discussants: Antoine Lutz, Yulia Ustinova*
- W 3 – Room Auditorium; simultaneous translation will be assured**  
*Impact of AI in science, organization and the arts*  
*Moderator | Nuno Sousa*  
*Invited discussants: Gonzalo de Polavieja, Mattia Bergomi*
- W 4 – Room Medicoteca**  
*Neurostimulation - a new tool for neuroenhancement?*  
*Moderator | Miguel Castelo-Branco*  
*Invited discussants: Rainer Goebel, Alexander Sack*
- 17:00-18:00 | *Get-together Cheese & Wine*

**3rd session - Collective intelligence**

*Moderator - Rui Costa*

09:00-09:15 *Abertura | Opening remarks*

09:15-09:45 *Understanding the world collectively*  
**Gonzalo de Polavieja**

09:50-10:20 *Simple minds living in complex social worlds*  
**Rui Oliveira**

10:25-10:55 *Brain vs. machine control, which one gets the power?*  
**Jose Carmena**

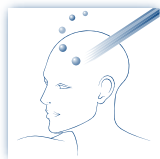
11:00-11:30 *Café, sessão de posters e contactos*  
*Coffee, posters session and contacts with faculty*

11:30-12:15 *Conferência | Keynote lecture*  
*Collective intelligence as a central characteristic of small groups*  
**Christopher Chabris**

12:30-13:00 *Discussão | Morning Discussion*

13:00-14:30 *Almoço | Lunch*

14:30-16:30 *Mesa-redonda | Round-table*  
*Ethics of enhancement*  
*Chairman | Axel Cleeremans*  
*Participants: Lorenza Colzato, Etzel Cardeña, Anjan Chatterjee,*  
**Jean-Nöel Missa**



# AQUÉM E ALÉM DO CÉREBRO

Casa do Médico - Porto • 4 a 7 de abril de 2018

## Resumos das Comunicações | Abstracts

### 04.04 | quarta-feira | Wednesday

Conferência Inaugural | *Opening Conference*  
Chairman | **Axel Cleeremans**

*Enhancing brain and cognition: A theory-driven approach*  
**Lorenza Colzato**



#### **Axel Cleeremans**

Diretor de Investigação, Grupo da Consciência, Cognição e Computação, Universidade Livre de Bruxelas, Bélgica. Interesses científicos: consciência e aprendizagem implícita, modelos de cognição consciente e não consciente, rede neuronal de processos cognitivos.

*Research Director, Consciousness, Cognition & Computation Group, Université Libre de Bruxelles, Belgium. Scientific interests: consciousness and implicit learning, models of conscious and unconscious cognition, neural network of cognitive processes.*

## ENHANCING BRAIN AND COGNITION: A THEORY-DRIVEN APPROACH

**Lorenza Colzato**

The essence of cognitive enhancement is the use of any (legitimate) means to reach one's personal best. Kurt Lewin's claim that "nothing is as practical as a good theory" is the leitmotif of this talk about cognitive enhancement. Whereas in the past the field of cognitive enhancement used mainly effect-driven approaches (that seek to demonstrate that an enhancing intervention can have an effect without explaining how it modulates the targeted function, this talk proposes a mechanistically oriented, theory-driven approach that tries to understand how a particular intervention modulates cognition. First, I will introduce the idea that the administration of the amino acid L-Tyrosine, precursor of dopamine, refills resources required for cognitive-control operations. Second, I will show that transcutaneous vagus nerve stimulation may be a promising novel noninvasive brain stimulation tool in enhancing the recognition of other's emotions. Third, I will illustrate how recently popular sub-perceptual doses of psychedelic substances such as truffles, referred to as "microdosing", allegedly have multiple beneficial effects including creativity and problem-solving performance.



### **Lorenza Colzato**

Professora de Potencialização Cognitiva, Departamento de Psicologia Cognitiva, Instituto de Neurociência Cognitiva, Faculdade de Psicologia, *Ruhr-University Bochum*, Alemanha; Investigadora Principal, Unidade de Psicologia Cognitiva, *Leiden University*, Holanda. Interesses científicos: potencialização cognitiva e cerebral visando melhorar o desempenho de indivíduos saudáveis, mediante intervenção nutricional (tirosina, triptofano, gaba, colina, probióticos) e estimulação transcutânea do nervo vago.

*Professor of Cognitive Enhancement, Department of Cognitive Psychology, Institute of Cognitive Neuroscience, Faculty of Psychology, Ruhr-University Bochum, Germany; Principal Investigator, Cognitive Psychology Unit, Leiden University, The Netherlands. Scientific interests: brain and cognitive enhancement aimed at improving performance in healthy individuals, through nutritional interventions (tyrosine, tryptophan, gaba, choline, probiotics) and transcutaneous vagus nerve stimulation.*



# AQUÉM E ALÉM DO CÉREBRO

Casa do Médico - Porto • 4 a 7 de abril de 2018

## Resumos das Comunicações | Abstracts

05.04 | quinta-feira | Thursday

### 1st session - Cognitive enhancement

Moderator - **Rainer Goebel**

*Enhancing human cognition using noninvasive brain stimulation*

**Alexander Sack**

*Cosmetic neurology: Ethical considerations and public attitudes*

**Anjan Chatterjee**

*Cognitive enhancement and doping in sport*

**Jean-Noël Missa**

Conferência | *Keynote lecture*

*The neuroscience of working memory capacity and training*

**Torkel Klingberg**



#### **Rainer Goebel**

Professor de Neurociência Cognitiva, Faculdade de Psicologia e Neurociência, Universidade de Maastricht, Holanda. Diretor e fundador do *Maastricht Brain Imaging Centre* (M-BIC). Interesses científicos: representações neuronais no cérebro e o modo como estas são processadas para permitir funções perceptivas e cognitivas específicas, correlatos neuronais da percepção visual, aplicações clínicas nas interfaces cérebro-computador (ICC) e estudos de *neurofeedback*.

*Professor of Cognitive Neuroscience, Faculty of Psychology and Neuroscience, Maastricht University, The Netherlands. Founding director of the Maastricht Brain Imaging Centre (M-BIC). Scientific interests: neuronal representations in the brain and how they are processed to enable specific perceptual and cognitive functions, neural correlates of visual awareness, clinical applications in brain computer interfaces (BCIs) and neurofeedback studies.*



## ENHANCING HUMAN COGNITION USING NONINVASIVE BRAIN STIMULATION

### Alexander Sack

Human beings are capable of performing a variety of higher-order cognitive abilities, such as problem solving, reasoning, contemplating, imagining, calculating, but also object recognition, or spatial orientation. All of these cognitive functions require, and are to a large extent based on, our core abilities of attention, working memory, and cognitive control. These cornerstones of human cognition are essential for our adequate functioning and interaction with our environment. Using functional brain imaging, my group and others consistently identified similar fronto-parietal brain networks to be activated during the execution of these three core cognitive functions. In addition, much has also been learned about the communication pattern within these brain networks by identifying their temporal activation rhythms. The intriguing perspective is to use this knowledge about the spatiotemporal brain network mechanisms underlying optimal cognitive performances, to enhance these functions using noninvasive brain stimulation techniques. In this talk, I will showcase how noninvasive magnetic and electric brain stimulation can be used to specifically enhance human cognition in healthy volunteers, focusing especially boosting performance in attention, working memory, and cognitive control.

05.04



#### Alexander Sack

Vice-Diretor e Diretor de Investigação, Faculdade de Psicologia e Neurociências, Departamento de Neurociências Cognitivas, Universidade de Maastrich, Holanda. Interesses científicos: mecanismos de comunicação para potenciar a cognição humana, ritmos cerebrais e percepção multissensorial, uso do equipamento necessário para medição simultânea de fMRI, TMS e EEG, modulação de redes não correlacionadas em fase precoce da doença de Alzheimer, predição de comportamento violento futuro de criminosos antissociais e recuperação do cérebro após um AVC.

*Vice-Dean and Research Director, Faculty of Psychology and Neuroscience, Department of Cognitive Neuroscience, Maastricht University, The Netherlands. Scientific interests: communication mechanisms for enhancing human cognition, brain rhythms and multisensory perception, use of equipment required for simultaneous fMRI, TMS & EEG measurements, modulation of not correlated networks in early Alzheimer's disease, prediction of future violent behavior of antisocial offenders and brain recovery after stroke.*

## COSMETIC NEUROLOGY: ETHICAL CONSIDERATIONS AND PUBLIC ATTITUDES

### Anjan Chatterjee

In the wake of our improving abilities to treat the impaired nervous system, we are also learning how we might improve functioning of the healthy nervous system. We can modulate our motor, cognitive, and affective systems in ways that potentially enhance us. Pharmacological enhancements are used widely in some circles and their use is likely to increase. Newer non-invasive stimulation techniques also have the potential to be used as enhancements. These devices are available commercially, which means that people now can acquire potentially enhancing neurotechnologies without access being moderated by medical gatekeepers. If we can make people “better,” should we? Neuro-enhancements raise deep ethical concerns about safety, compromised character, distributive justice, and coercion. Despite the ethical quandaries that arise, prohibition of enhancements is not a viable option. Historic precedents might help guide our thinking about the current and presumed future state of cosmetic neurology. Discussions about ethical enhancement and policy implications of such a practice needs to be informed by knowledge of public attitudes. I will present recent data that addresses American attitudes towards enhancement. Based on a survey of 3,727 American participants, we found that people were more likely to support the use of enhancements for others than for themselves. The context of the use of enhancements mattered. People were more likely to support the use of enhancements in the workplace than in schools or in athletic competitions. The metaphoric framing of enhancement influenced people’s attitudes towards others using enhancements, but not to their own use. Finally, various demographic variables, such as race, political affiliation, gender, and exposure to technology, affected support or wariness with regard to cosmetic neurology. These results point out American public is not monolithic in its attitudes towards enhancement, a fact that needs to be taken into consideration in policy discussions.



#### **Anjan Chatterjee**

*Elliot Professor de Neurologia, Departamento de Neurologia, Escola de Medicina, Universidade de Pensilvânia, Filadélfia, EUA. Interesses científicos: ética da transformação tecnológica da experiência humana, neurologia cosmética e ética da neuropotencialização, neurociência da estética e da arte, abstração de formas e formas de abstração, linguagem figurativa em indivíduos saudáveis e afásicos, inteligência espacial e centro de aprendizagem.*

*Elliot Professor of Neurology, Department of Neurology, University of Pennsylvania School of Medicine, Philadelphia, USA. Scientific interests: ethics of technological transformation of human experience, cosmetic neurology and the ethics of neuroenhancement, the neuroscience of aesthetics and art, abstraction of forms and forms of abstraction, figurative language in aphasic and healthy individuals, spatial intelligence and learning center.*

## COGNITIVE ENHANCEMENT AND DOPING IN SPORT

**Jean-Noël Missa**

The debate on performance enhancement in sport has obviously been going on for a long time, but it has evolved significantly in the last few years. In our view, there are two reasons for these new developments: the setting up of the World Anti-Doping Agency and the emergence of enhancement medicine. This paper is intended as a contribution to the debate on the future of sport, confronted as it is with the problem of doping (including cognitive enhancement). Even assuming that doping-free competitive sport is preferable to sport which tolerates certain forms of doping subject to medical supervision, the soundness of the policy currently pursued by the World Anti-Doping Agency (WADA) and international sports authorities is open to question. The relative ineffectiveness of anti-doping controls raises serious ethical and sports justice issues. A very large number of doped athletes manage to slip through the anti-doping net. As a result, the two main aims of WADA's policy – to enable athletes to compete on a level playing field and to eradicate doping – are not achieved. Doping is a complex problem to which there is no simple solution. A wide-ranging societal debate, free from prejudice, should therefore be launched on the consequences of anti-doping policy, the legitimacy of using performance enhancement techniques in sport and the sports policy that should be advocated if athletes are to practice their sport under the best possible conditions. Special attention will be paid to the place of cognitive enhancement in competitive sport. A comparison will be made with the use of cognitive enhancement in other professional areas.



**Jean-Noël Missa**

Diretor de Investigação do *National Fund for Scientific Research*, Bélgica; Professor de Filosofia e Ética, Universidade Livre de Bruxelas, Bélgica, e Diretor do *Center for Interdisciplinary Research in Bioethics*. Interesses científicos: história, filosofia e ética da biomedicina - neurociências e psiquiatria biológica -, ética e filosofia do "doping".

*Research Director at the National Fund for Scientific Research, Belgium; Professor of Philosophy and Ethics, Université Libre de Bruxelles, Belgium, and Director of the Center for Interdisciplinary Research in Bioethics. Scientific interests: history, philosophy and ethics of biomedicine - neuroscience and biological psychiatry -, ethics and philosophy of doping.*

# THE NEUROSCIENCE OF WORKING MEMORY CAPACITY AND TRAINING

## Torkel Klingberg

Working memory - the ability to maintain and manipulate information over a period of seconds - is a core component of higher cognitive functions. The storage capacity of WM is limited but can be expanded by training, and evidence of the neural mechanisms underlying this effect is now accumulating. Human imaging studies and neurophysiological recordings in non-human primates and computational modeling reveal that training increases activity of prefrontal neurons and the strength of connectivity within the prefrontal cortex and between the prefrontal and parietal cortex. Dopaminergic transmission could play a facilitatory role. These changes more generally inform of the plasticity of higher cognitive functions.



### Torkel Klingberg

Professor de Neurociências Cognitiva, *Karolinska Institute*, Estocolmo, Suécia; Diretor do *CognitionMatters.org*. Interesses científicos: desenvolvimento do cérebro da criança e competências acadêmicas, educação, treino cognitivo e treino da memória de trabalho.

*Professor of Cognitive Neuroscience, Karolinska Institute, Stockholm, Sweden; Head of CognitionMatters.org. Scientific interests: child brain development and academic abilities, education and cognitive training and working memory training.*

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**05.04 | quinta-feira | Thursday**

Apresentações orais posters - Investigadores apoiados

*Posters oral presentations - Grant holders*

Moderator | **Mário Simões**



**Mário Simões**

Professor de Psiquiatria e de Ciências da Consciência e Diretor do LIMMIT - Laboratório de Interação Mente-Matéria de Intenção Terapêutica, Faculdade de Medicina de Lisboa, Portugal. Interesses científicos: psicologia e psicofisiologia dos estados alterados de consciência, etnomedicina, experiências excecionais humanas e psicologia e espiritualidade.

*Professor of Psychiatry and Consciousness Sciences and Director of LIMMIT - Laboratory of Interaction Mind-Matter with Therapeutic Intention, Faculty of Medicine of Lisbon, Portugal. Scientific interests: psychology and psychophysiology of altered states of consciousness, ethnomedicine, human exceptional experiences and psychology and spirituality.*

**128/10 - "Extending the spiritual healing paradigm to explore distant mental interaction effects with Wiccan healers"**

Investigadores/Researchers: **Chris Roe**, Charmaine Marie Sonnex  
Instituição/Institution: Centre for the Study of Anomalous Psychological Processes (CSAPP), University of Northampton, Psychology Division, Northampton (UK)

**51/12 - "The interpretation and evaluation of meaningful coincidences suggestive of psi communication in everyday life"**

Investigadores/Researchers: **Robin Wooffitt**, Germaine Gunther  
Instituição/Institution: Anomalous Experiences Research Unit, Dep. of Sociology, University of York (UK)

**87/12 - "Neurobiological correlates of empathy in couples: A study of central and peripheral measures"**

Investigadores/Researchers: **Joana Fernandes Pereira Coutinho**, Cledna Patrícia de Oliveira Silva, Jean Decety, Kristin Perrone McGovern, Óscar Filipe Coelho Neves Gonçalves, Vânia Andrea Sousa Gonçalves Moreira de Lima  
Instituição/Institution: Centro de Investigação em Psicologia, Escola de Psicologia, Universidade do Minho, Braga (Portugal)

**130/12 - "Neural mechanisms of cognitive bias"**

Investigadores/Researchers: **Rui Filipe Nunes Pais de Oliveira**, Ana Félix, Sara Cardoso  
Instituição/Institution: ISPA, CRL, Lisbon and Instituto Gulbenkian de Ciência, Oeiras (Portugal)

**157/12 - "Contributions of parent-infant psychophysiology during dyadic interactions to child development"**

Investigadores/Researchers: **Raquel Alexandra Gonçalves Costa**, Iva Tendais, Ana Conde, Catarina Tojal  
Instituição/Institution: ISLA Campus Lisboa, Laureate International Universities, Lisboa (Portugal)

**178/12 - "How collaboration in psychotherapy becomes therapeutic: A study of interactive and psychophysiological processes in good and poor outcome cases"**

Investigadores/Researchers: **Eugénia Maria Ribeiro Pereira**, Adriana Sampaio, Cledna Patrícia Silva, António P. Ribeiro, Adam O. Horvath, William B. Stiles, Inês Sousa, Joana Mourão, Dulce Pinto, Zita Sousa  
Instituição/Institution: Centro de Investigação em Psicologia (CIPsi/UM), Escola de Psicologia, Universidade do Minho, Braga (Portugal)

**185/12 - "Circuit mechanisms of spatial attention in the zebrafish midbrain"**

Investigadores/Researchers: **Michael Brian Orger**, Sabine L. Renninger  
Instituição/Institution: Fundação Champalimaud, Lisboa (Portugal)

**192/12 - "Effects of conditional foxp2 deletion on motor-sequence learning"**

Investigador/Researcher: **Catherine Ann French**  
Instituição/Institution: Fundação Champalimaud, Lisboa (Portugal)

**83/14 - "Electrophysiological correlates of the incorporation of recent memory sources into REM and non-REM dreams and of levels of insight following REM and non-REM dream interpretation"**

Investigadores/Researchers: **Mark Blagrove**, Chris Edwards, Jean-Baptiste Eichenlaub, Perrine Ruby  
Instituição/Institution: College of Human and Health Sciences, Department of Psychology, Swansea University (UK)

**118/14 - "Recursive consciousness training: Using neurofeedback to induce altered states"**

Investigadores/Researchers: **Amir Raz**, Niels Birbaumer, Robert T Thibault  
Instituição/Institution: Montreal Neurological Institute, McGill University (Canada); Institute of Medical Psychology and Behavioral Neurobiology, University of Tübingen (Germany)

**128/14 - "Autonomic nerve recordings applied as a novel psychophysiological tool for Consciousness Science"**

Investigadores/Researchers: **Hugo Dyfrigg Critchley**, Peter Taggart, Yrsa Sverrisdottir  
Instituição/Institution: Brighton and Sussex Medical School, University of Sussex (UK); Department of Physiology, Anatomy and Genetics, University of Oxford (UK)

**143/14 - "From audio-visual perception to action: The processing of spatio-temporal components"**

Investigadores/Researchers: Sandra Mouta, Joana Vieira, **Mariana Silva**  
Instituição/Institution: Association/ZGDV-Centro de Computação Gráfica, Guimarães (Portugal)

**163/14 - "Sacred values underlying conflict proneness: A neuroimaging study of religious and nationalist radicals"**

Investigadores/Researchers: Adolf Tobena, **Clara Petrus**, Joseph Hilferty, Oscar Vilarroya, Scott Atran  
Instituição/Institution: Department of Psychiatry and Forensic Medicine UAB, Bellaterra Campus (Spain)

**228/14 - "Pushing consciousness and selfhood towards their boundaries - An EEG neurophenomenological study"**

Investigadores/Researchers: Joseph Glicksohn, Aviva Berkovich-Ohana, **Tal Dotan Ben-Soussan**  
Instituição/Institution: Bar-Ilan University, Ramat Gan (Israel); Fondazione Patrizio Paoletti, Assisi (Italy)

**233/14 - "Training anomalous cognition in a motor task with subliminal auditory feedback"**

Investigador/Researcher: **John Albert Palmer**  
Instituição/Institution: Rhine Research Center, Durham, NC (USA)

**244/14 - "Induced brain plasticity after perinatal stroke: Structural and functional connectivity"**

Investigadores/Researchers: **Antoni Rodriguez-Fornells**, Alfredo García-Alix, Carme Fons, Clément François, Jordi Muchart, Laura Bosch, Mónica Rebollo, Pablo Ripollés  
Instituição/Institution: Department of Basic Psychology, University of Barcelona (Spain); Hospital Sant Joan de Deu, Esplugues de Llobregat (Spain)

**246/14 - "Anomalous/paranormal experiences reported by nurses themselves and in relation with their patients in hospitals: Examining psychological, personality and phenomenological variables"**

Investigador/Researcher: **Alejandro Enrique Parra**  
Instituição/Institution: Instituto de Psicologia Paranormal, Buenos Aires (Argentina)

**253/14 - "The impact of lipid signaling modulation in cognition"**

Investigadores/Researchers: **Tiago Gil Rodrigues Oliveira**, Isabel Maria Sousa Castanho, Neide Marina Vieira Pereira, Rita Catarina Ribeiro da Silva, Vítor Manuel da Silva Pinto  
Instituição/Institution: Life and Health Sciences Institute - ICVS, School of Health Sciences, University of Minho, Braga (Portugal)

**279/14 - "Facial and bodily temperature maps of emotions"**

Investigadores/Researchers: Maria **Lucia** Martins das Neves **Garrido**, Lisa Katharina Kuhn, Nicholas Pound  
Instituição/Institution: Division of Psychology, Department of Life Sciences, Brunel University, Uxbridge (UK)

**282/14 - "The mindful eye: Smooth pursuit and saccadic eye movements in meditators and non-meditators"**

Investigadores/Researchers: **Veena Kumari**, Elena Antonova  
Instituição/Institution: Institute of Psychiatry, King's College London (UK)

#### **287/14 - “Cryptochrome (CRY) and Intention”**

Investigadores/Researchers: **Yung-Jong Shiah**, Hsu-Liang Hsieh, Dean Radin  
Instituição/Institution: Graduate Institute of Counseling Psychology and Rehabilitation Counseling of the National Kaohsiung Normal University, Kaohsiung (Taiwan); Photobiology Lab, Taipei (Taiwan)

#### **340/14 - “A question of belief: An analysis of item content in paranormal belief questionnaires”**

Investigadores/Researchers: **Lance Storm**, Ken Drinkwater, Tony Jinks  
Instituição/Institution: Brain and Cognition Centre, School of Psychology, University of Adelaide (Australia); Department of Psychology, Faculty of Health, Psychology and Social Care, Manchester (UK)

#### **344/14 - “An integrative approach to the neural basis of hypnotic suggestibility”**

Investigador/Researcher: **Devin Blair Terhune**  
Instituição/Institution: Goldsmiths, University of London (UK)

#### **355/14 - “Cognitive and personality differences in supernatural belief”**

Investigadores/Researchers: Ian Scott Baker, David Sheffield, **Malcolm Schofield**, Paul Staples  
Instituição/Institution: College of Life and Natural Sciences, University of Derby (UK)

#### **366/14 - “Changes in subjective time as indication of increased mindfulness after meditation”**

Investigador/Researcher: **Marc Christoph Wittmann**  
Instituição/Institution: Institute for Frontier Areas of Psychology and Mental Health, Freiburg (Germany); Department of Psychosomatic Medicine, University Medical Center Freiburg (Germany)

#### **373/14 - “Multimodal mapping of visual motion perceptual decision: Dissecting the role of different motion integration areas in visual surface reconstruction”**

Investigadores/Researchers: **Miguel de Sá e Sousa de Castelo Branco**, Gabriel Nascimento Ferreira da Costa, Gilberto Silva, João Valente Duarte, Ricardo Martins  
Instituição/Institution: ICNAS - Institute for Nuclear Sciences Applied to Health, Coimbra (Portugal); IBILI - Institute for Biomedical Imaging and Life Sciences, Coimbra (Portugal)

#### **380/14 - “Using neural stimulation to modulate paranormal beliefs”**

Investigadores/Researchers: **Miguel Farias**, Ute Kreplin  
Instituição/Institution: Centre for Research in Psychology, Behaviour and Achievement, Coventry University (UK)

#### **385/14 - “Affective and cognitive modulation of pain by using real-time fMRI neurofeedback”**

Investigadores/Researchers: **Pedro Jose Montoya Jimenez**, Beatriz Rey Solaz, Inmaculada Riquelme, Miguel Angel Munoz Garcia, Niels Birbaumer  
Instituição/Institution: Research Institute on Health Sciences, University of Balearic Islands, Palma (Spain)

#### **386/14 - “Remote meditation support - A multimodal distant intention experiment”**

Investigadores/Researchers: Stefan Schmidt, Han-gue Jo, **Marc Wittmann**, Thilo Hinterberger, Wolfgang Ambach  
Instituição/Institution: Department of Psychosomatic Medicine, University Medical Center Freiburg (Germany); Institut für Grenzgebiete der Psychologie und Psychohygiene, Freiburg (Germany)

#### **400/14 - “Is the matrix-experiment really a robust and artifact free experimental model to demonstrate generalized entanglement effects?”**

Investigador/Researcher: **Harald Walach**  
Instituição/Institution: Institute of Transcultural Health Studies, European University Viadrina, Frankfurt Oder (Germany)

#### **402/14 - “Skin Conductance Feedback Meditation (SCFM) – Exploring the role of skin conductance in meditative practice”**

Investigador/Researcher: **Thilo Hinterberger**  
Instituição/Institution: Department of Psychosomatic Medicine, Clinic of the University of Regensburg (Germany)

#### **413/14 - “The role of dopamine in behavioral exploration and action selection”**

Investigador/Researcher: **Aaron Christopher Koralek**  
Instituição/Institution: Champalimaud Neuroscience Programme, Lisboa (Portugal)

#### **480/14 - “The role of experimenter and participant mindset in the replication of psi experiments: Phase II of a global initiative”**

Investigador/Researcher: Marilyn Schlitz, **Arnaud Delorme**  
Instituição/Institution: Institute of Noetic Sciences, Petaluma, California (USA)

#### **489/14 - “An examination of the effects of mood and emotion on a real-world computer system and networking environment”**

Investigador/Researcher: **John G. Kruth**  
Instituição/Institution: Rhine Research Center, Durham (USA)

#### **495/14 - “Episodic memory enhancement in aging: The role of cognitive training combined with (bilateral) tDCS in the medial-temporal cortex and cerebellum on episodic memory performance in the elderly”**

Investigadores/Researchers: Mário Manuel Rodrigues Simões, Filipe Fernandes, Jorge Evandro de Araújo Alves, Marcel Simis, Ana Rita Simões Martins, Jorge Almeida, **Lénia Alexandra Leal Amaral**  
Instituição/Institution: CINEICC - Centro de Investigação do Núcleo de Estudos e Intervenção Cognitivo-Comportamental/Universidade de Coimbra (Portugal)

#### **506/14 - “The Selfield: Optimizing precognition research”**

Investigadores/Researchers: **Mario Varvoglis**, Peter Bancel  
Instituição/Institution: Institut Metapsychique International, Paris (France); Institute of Noetic Sciences, Petaluma, California (USA)

#### **“The Aging Social Brain - Neural and behavioral age-related changes in social cognition and decision-making”**

Investigadores/Researchers: João Eduardo Marques Teixeira, Manuel Fernando Santos Barbosa, Fernando Ricardo Ferreira Santos, Pedro Manuel Rocha Almeida, Hugo Daniel Leão Sousa, **Carina Fernandes**  
Instituição/Institution: Faculdade de Psicologia e de Ciências da Educação, Universidade do Porto (Portugal)

#### **“Aware Mind-Brain: Bridging insights on the mechanisms and neural substrates of human awareness and meditation”**

Investigadores/Researchers: **Antonino Raffone**, Salvatore Maria Aglioti, Henk P. Barendregt, Fabio M. Giommi, Juliana Jordanova, Peter Malinowski, Stephen Whitmarsh  
Instituição/Institution: ECONA - Interuniversity Center for Cognitive Processing in Natural and Artificial Systems, Università degli Studi di Roma “La Sapienza” (Italy)

#### **97/16 - “Reproductive hormonal status as a predictor of precognition”**

Investigadores/Researchers: **Julia Mossbridge**, Daryl Bem  
Instituição/Institution: Institute of Noetic Sciences, Petaluma, California (USA); Department of Psychology, Cornell University, Ithaca (USA)



## Resumos das Comunicações | Abstracts

06.04 | sexta-feira | Friday

### 2nd session - Amplified states of consciousness

Moderator - **Caroline Watt**

*Derangement of the senses or alternate epistemological pathways?  
Research on alterations of consciousness and human potentials*

**Etzel Cardeña**

*Ayahuasca as a mind enhancer - its knowledge and potential*

**Olga Silva, Mário Simões**

*Enhancing the mind in Ancient Greece*

**Yulia Ustinova**

Conferência | *Keynote lecture*

*Regulation of attention and emotions by meditation: Neurophysiological basis  
and implications for mental and physical health*

**Antoine Lutz**



#### **Caroline Watt**

Professora titular da *Koestler Chair of Parapsychology* e membro fundador da *Koestler Parapsychology Unit*, Departamento de Psicologia, Universidade de Edimburgo, Escócia. Interesses científicos: questões metodológicas e de replicabilidade em parapsicologia.

*Holder of the Koestler Chair of Parapsychology, and founder member of the Koestler Parapsychology Unit, Psychology Department, University of Edinburgh, Scotland. Scientific interests: replication and methodological issues in parapsychology.*



# DERANGEMENT OF THE SENSES OR ALTERNATE EPISTEMOLOGICAL PATHWAYS? RESEARCH ON ALTERATIONS OF CONSCIOUSNESS AND HUMAN POTENTIALS

**Etzel Cardeña**

Our ordinary, waking state of consciousness, is typically considered by contemporary science as normative and the purveyor of the best apprehension of "reality". This has been the case despite its various perceptual and cognitive limitations – partly explainable by evolutionary pressures – and personal and cultural biases and automatisms. In contrast, various philosophical traditions in both the West and the East, as well as a psychological school traceable to William James, F. W. H. Myers, and others, have deemed the ordinary state as narrow and potentially misleading, and have described "enhanced" states of consciousness that may provide insights into the nature of mind and its relation to reality.

This presentation will first describe research findings on some of the constraints of the ordinary state. Next, it will discuss the concept of "higher", "amplified", or "extended" consciousness states or traits, because it is far from obvious in what ways a particular state may be thought of as "enhanced". Various solutions can be offered, depending on what we prioritize: an improvement of common processes or abilities; greater mental control or focus, or performance at a task; access to usually implicit aspects of the mind/brain; new noetic perspectives on the self and/or reality; more comprehensive and unselfish ethical/ecological perspectives; or a combination of some or all of the above.

This presentation will then discuss research on how spontaneous or purposefully induced (e.g., through hypnosis, meditation, sensory restriction techniques, rituals) anomalous experiences and alterations of consciousness can produce specific enhancement of abilities, including decreased perceptual and cognitive automaticity; enhanced physiological control; recovery from different ailments; and positive changes in emotions, sense of meaning, and relationships with other beings and the environment. The final section will review supportive research evidence for one of the most daring claims about alternate states of consciousness: that they may give access to information not bound by common sense notions of time, space, and selfhood (i. e., psi phenomena).



**Etzel Cardeña**

*Thorsen Professor de Psicologia, Departamento de Psicologia, Universidade de Lund, Suécia. Interesses científicos: psicologia das experiências excepcionais/estados não ordinários de consciência, fenômenos parapsicológicos, neurofenomenologia da hipnose, dissociação, perturbações dissociativas e divagação mental, estados alterados de consciência e parapsicologia.*

*Thorsen Professor of Psychology, Department of Psychology, Lund University, Sweden. Scientific interests: the psychology of anomalous experiences/non-ordinary mental expressions, parapsychological phenomena, neurophenomenology of hypnosis, dissociation, dissociative disorders and mind wandering, altered states of consciousness and parapsychology.*

## AYAHUASCA AS A MIND ENHANCER - ITS KNOWLEDGE AND POTENTIAL

Olga Silva, Mário Simões

Ayahuasca is the Quechua word referring to a South American traditional herbal preparation typically produced by decoction of a mixture of *Banisteriopsis caapi* stem and *Psychotria viridis* leaf. Among others, it contains as marker compounds the psychedelic 5-HT<sub>2A</sub> and sigma-1 agonist N,N-dimethyltryptamine (DMT) from *P. viridis* plus  $\beta$ -carboline alkaloids with monoamine-oxidase (MAO)-inhibiting properties like harmine, harmaline and tetrahydroharmine from *Banisteriopsis caapi*. These marker compounds, when administered to humans, produce transitory modifications in emotion, thought content, perception and somatic sensations, while the capacity of the individual to interact with its surroundings is significantly preserved. Studies of medium- and long-term Ayahuasca's use suggest that brain alterations manifested as increased spiritual tendencies can be produced.

Ayahuasca is well tolerated. Adverse effects consisting in some psychiatric symptomatology in ritual contexts are rare but the administration of this herbal traditional preparation is contraindicated for people with grave psychiatric disorders, particularly those individuals prone to psychosis. The main adverse effects produced by it are nausea and vomiting. There is not abuse potential since no activation of brain areas related to the reward systems was observed – the brain areas activated by drugs with potential for abuse.

Ayahuasca therapeutic potential of “decentering” is considered important in clinical psychology. It can produce psychological changes inpatients like self-transcendence, personal development, the search for psychological wellbeing, and better environment adaptation. These findings are like those observed among people who practice meditation or other techniques for personal development and wellbeing and shall be addressed in this presentation.

Ayahuasca is also used as antidepressant, in the treatment of alcohol and drug dependence, in posttraumatic stress disorder (PTSD) and antisocial behavior. This herbal medicine has been object of a wide series of scientific studies, and the results have been proven on its therapeutic potential. However, the variability inherent to the use of biological material from different sources together with different dosages and forms of preparation means that in most cases it is not possible to compare the results obtained by different teams. In this context there is still a way to go, to allow the profit of the integral therapeutic potential of this herbal medicine.

## ENHANCING THE MIND IN ANCIENT GREECE

**Yulia Ustinova**

Both the ancient Greek term *epipnoia* and the Latin *inspiratio*, from which the English word ‘inspiration’ derives, convey the idea of breath, an airy invisible flow, entering a person from the outside, temporarily elevating him or her to an extraordinary level – of creativity, vision, knowledge, physical force or courage. In my presentation, I’ll discuss inspiration of famous Greek philosophers, traditional sages and prophetic priests, and the methods employed to attain this state.

In Plato’s opinion, prolonged investigation is conducive to the ultimate knowledge, which bursts out as a revelation. True knowledge requires deliberation, but they are separated by a gap, and their nature is different. This position is reminiscent of the accounts of modern thinkers and scientists who arrived at their ideas as a result of illumination: this spark of truth is possible only after a prolonged contemplation of a problem, culminating in the realisation of the solution, to be safeguarded later by rational scrutiny.

Plato also refers to Socrates’ trance-like meditations, out-of-body experiences and feeling of divine intrusion. Philosophising of some Plato’s predecessors, such as Pythagoras and Parmenides, probably included meditation, sensory deprivation, and complex preparations leading to illumination, subsequently re-considered my means of rational judgement.

These practices are reminiscent of the tradition of self-cultivation and manipulation of consciousness of quasi-historical Archaic Greek sages, who ‘acquired their knowledge of the divine by means of ecstatic and initiatory wisdom,’ as Plutarch says. In many Greek oracular sanctuaries, a common prerequisite was a solitary way of life. Immediately preceding oracle-giving, the prophetic person performed a set of ritual actions, often including sensory deprivation, in order to attain the state of revelation construed as divine possession.

Seers, initiates and enlightened thinkers see and hear what others do not. These individuals perceive their inside and outside world in a manner different from the usual, which in Greece was construed as divine inspiration. When the Greeks witnessed a state of mind that was beyond comprehension in terms of regular experiences, they thought of engoddedness - *enthousiasmos* in Greek: such phenomena were ascribed either to pure divine intervention or to an interaction of human and divine forces.

In order to attain this state, philosophers used methods comparable with the techniques applied in vision quest by traditional sages and in oracular practices. Thus, rational thinkers and spiritual seekers, in the past and nowadays, report some congruent experiences that they regard as salient – and this is a subject to be explored by experts on the brain alongside historians.



**Yulia Ustinova**

Professora Associada, Departamento de História Geral, *Ben-Gurion University*, Negev, Israel. Interesses científicos: alteração da consciência e insanidade na cultura grega, harmonia cognitiva e pensamento enviesado na Grécia Antiga; religiões orientais no mundo grego e romano, práticas de alteração da consciência no Ocidente desde a Pré-História até à Antiguidade tardia, aspetos experienciais de rituais do mistério grego antigo.

*Associate Professor, Department of General History, Ben-Gurion University, Negev, Israel. Scientific interests: alteration of consciousness and insanity in Greek culture, cognitive harmony and biased thinking in ancient Greece; oriental religions in the Greek and Roman world, consciousness alteration practices in the West from Prehistory to Late Antiquity, experiential aspects of ancient Greek mystery rites.*

# REGULATION OF ATTENTION AND EMOTIONS BY MEDITATION: NEUROPHYSIOLOGICAL BASIS AND IMPLICATIONS FOR MENTAL AND PHYSICAL HEALTH

**Antoine Lutz**

Mindfulness-based therapy has become an increasingly popular treatment to reduce stress, increase well-being and prevent relapse in depression. A key component of these therapies includes mindfulness practice that intends to train attention to detect and regulate afflictive cognitive and emotional patterns. Despite its clinical efficacy, little remains known about its cognitive and neurophysiological means of action of meditation. In this presentation, we will first review the key cognitive mechanisms of mindfulness meditation. Then we will show how mindfulness meditation impacts the training and plasticity of emotion regulation and cognitive control as measured by neuroimaging paradigms from cognitive, and affective neuroscience (EEG, fMRI). In a last part, we will illustrate how the practice of mindfulness meditation can also influence bodily processes important for health, including the physiology and genetic expressions of stress and inflammation.



**Antoine Lutz**

Investigador Principal no INSERM, *Lyon Neuroscience Research Center*, no grupo de investigação *Cerebral Dynamic and Cognition*, Bron, França. Interesses científicos: estudos comportamentais e de neuroimagem da consciência, neurofenomenologia, relação entre a neuroplasticidade e o treino mental, bases neurobiológicas da meditação e o seu impacto em processos biológicos periféricos relevantes para a saúde física e mental, neuroimagem funcional, estudo do cérebro em estados de repouso para analisar diferenças individuais.

*Tenured scientist at INSERM, Lyon Neuroscience Research Center, team Cerebral Dynamic and Cognition, Bron, France. Scientific interests: behavioral and brain imaging studies of consciousness, neurophenomenology, relation between neuroplasticity and mental training, neurobiological basis of meditation and their impact on peripheral biological processes relevant to physical and mental health, functional brain imaging, study of brain resting states to study individual differences.*

*Parallel Workshops (W)*

**W 1** – Room Braga

*Wise plants*

Moderator | **Mário Simões**

*Invited discussants:* **Tania Re, Olga Silva**

**W 2** – Room Conferências

*Meditation*

Moderator | **Etzel Cardeña**

*Invited discussants:* **Antoine Lutz, Yulia Ustinova**

**W 3** – Room Auditorium; simultaneous translation will be assured

*Impact of AI in science, organization and the arts*

Moderator | **Nuno Sousa**

*Invited discussants:* **Gonzalo de Polavieja, Mattia Bergomi**

**W 4** – Room Medicoteca

*Neurostimulation - a new tool for neuroenhancement?*

Moderator | **Miguel Castelo-Branco**

*Invited discussants:* **Rainer Goebel, Alexander Sack**

## WISE PLANTS

Moderator | **Mário Simões**

Invited discussants: **Tania Re, Jordi Riba, Olga Silva**

The denomination "Wise Plants" comes from insights people get from their traditional cultural use. They are psychoactive plants that in some circumstances takes the individual to a mystical or cosmic experience what made some authors call them "entheogen plants" - plants that bring God inside. After a brief introduction on the theme, shall be presented the traditional ethnic use of Ayahuasca and Psilocybe mushrooms. The pharmacological properties of these both plants in relation to a potential therapeutic use shall be discussed. The therapeutic potential of both plants in the context of psychotherapy shall be addressed.



### Tania Re

Professora Assistente de Etnomedicina e Etnopsicologia. Psicóloga, Antropologista Médica, Fundadora e membro da Direção da *UNESCO Chair "Health Anthropology, Biosphere and Healing systems"*, Universidade de Génova, Itália. Investigadora e bolsista no *Regional Centre for Phytotherapy* (CERFIT), Hospital *Careggi*, Florença, Itália. Interesses científicos: antropologia médica, etnomedicina, fenomenologia dos estados alterados de consciência e medicina tradicional.

*Assistant Professor of Ethnomedicine and Ethnopsychology. Psychologist, Medical Anthropologist, Founder and Board Member of the UNESCO Chair "Health Anthropology, Biosphere and Healing systems", University of Genoa, Italy. Researcher and fellow at the Regional Centre for Phytotherapy (CERFIT), Careggi Hospital, Florence, Italy. Scientific interests: medical anthropology, ethnomedicine, phenomenology of altered states of consciousness and traditional medicines.*



### Olga Silva

Professora Associada de Farmacognosia e de Plantas Medicinais e Fitoterapia, Departamento de Ciências Farmacológicas, Diretora do Laboratório de Farmacognosia, Faculdade de Farmácia da Universidade de Lisboa, Portugal. Interesses científicos: farmacognosia, etnofarmacologia, plantas medicinais e fitoterapia, qualidade, segurança e modo de ação de plantas usadas na Medicina Tradicional de países da Lusofonia.

*Associate Professor of Pharmacognosy and Medicinal Plants and Phytotherapy, Department of Pharmacological Sciences, Director of the Laboratory of Pharmacognosy, Faculty of Pharmacy, University of Lisbon, Portugal. Scientific interests: pharmacognosy, ethnopharmacology, medicinal plants and phytotherapy, quality, safety and mode of action of plants used in Traditional Medicine of Lusophony countries.*

### MEDITATION

*Moderator* | **Etzel Cardeña**

*Invited discussants:* **Antoine Lutz, Yulia Ustinova**

Meditation is a deceptively simple term that encompasses various psychological practices and goals. Some of these practices have been written about and practiced for millennia in various traditions throughout the globe, and recently psychological and neurocognitive research has shown that they can produce a variety of (mostly) positive outcomes. This workshop will include a discussion about some basic aspects of meditation (e.g., what are its different types, how it differs from other mental practices such as hypnosis), what are some of its possible effects, and include some experiential exercises for the attendants.

## **IMPACT OF AI IN SCIENCE, ORGANIZATION AND THE ARTS**

*Moderator* | **Nuno Sousa**

*Invited discussants:* **Gonzalo de Polavieja, Mattia Bergomi**

We will divide the workshop in 1.5-hour discussion of what AI can do and then 30 minutes for open discussion with the audience. We will use very practical means of explicit code and results will run in the workshop.

This will help to understand what AI can do at the moment, what the risks could in principle be and what future developments can mean for us.

We will do this with explicit examples from science, organizations and art. In the last 30 minutes, we expect to enter in a discussion with the audience on the present and future of AI.



### **Nuno Sousa**

Professor e Presidente da Escola de Medicina da Universidade do Minho. Diretor do Centro Clínico Académico (2CA) - Braga e Investigador do ICVS, Universidade do Minho, Braga, Portugal. Interesses científicos: neurobiologia do stress e plasticidade das redes neuronais.

*Professor and President at the School of Health Science, University of Minho. Director of the Clinical Academic Center (2CA) - Braga and Researcher at ICVS, University of Minho, Braga, Portugal. Scientific interests: neurobiology of stress and brain network plasticity.*



### **Matti Bergomi**

Investigador no *Collective Behavior Lab, Champalimaud Centre for the Unknown*, Programa de Neurociências, Lisboa, Portugal. Interesses científicos: topologia algébrica - análise topológica de dados, variedades topológicas de dimensão superior, homologia persistente e persistência multidimensional, topologia de sistemas dinâmicos; aprendizagem de máquinas - redes de crenças profundas, memória e criatividade na inteligência artificial, aprendizagem por reforço, granularidade ótima para análise de séries temporais multivariadas.

*Researcher at Collective Behavior Lab, Champalimaud Centre for the Unknown, Neuroscience Programme, Lisbon, Portugal. Scientific interests: algebraic topology - topological data analysis, topology of high-dimensional varieties, persistent homology and multi-dimensional persistence, topology of dynamical systems; machine learning - deep belief networks, memory and creativity in artificial intelligence, reinforcement learning, optimal granularity for multivariate time series analysis.*



**NEUROSTIMULATION - A NEW TOOL FOR NEUROENHANCEMENT?**

*Moderator* | **Miguel Castelo-Branco**

*Invited discussants:* **Rainer Goebel, Alexander Sack**

Cognitive enhancement is a well-publicized non-therapeutic application of brain stimulation. This workshop is intended for a broad audience of people interested in understanding the basics of non-invasive brain stimulation as a tool to enhance brain function and influence human behavior in health and disease. A brief presentation of available techniques will take place. We will discuss issues related to ethics, safety and current applications. We will address physiological effects and the impact on cognitive performance, in comparison with other approaches, such as drug therapies and neurofeedback.

Bullet points to discuss:

How is research expanding on non-therapeutic applications of neurostimulation in healthy people? Can the range of non-therapeutic applications grow faster than therapeutic applications, as claimed by some researchers?

What is the potential impact of transcranial electrical stimulation to improve cognitive and non-cognitive performance in educational, military, athletic, gaming, and occupational settings?

What are the negative consequences, and long-term effects?

Is a market for direct-to-consumer non-therapeutic products feasible in terms of about safety and efficacy?

Are home settings emerging scenarios?



**Miguel Castelo-Branco**

Professor de Biofísica e Matemática e Ciências da Visão e Diretor do IBILI e ICNAS, Universidade de Coimbra, Portugal. Interesses científicos: neurociências sensoriais e cognitivas em populações saudáveis e doentes.

*Professor of Biophysics and Mathematics and Visual Sciences and Director of IBILI and ICNAS, University of Coimbra, Portugal. Scientific interests: sensory and cognitive neuroscience in healthy and ill populations.*



# AQUÉM E ALÉM DO CÉREBRO

Casa do Médico - Porto • 4 a 7 de abril de 2018

## Resumos das Comunicações | Abstracts

07.04 | sábado | Saturday

### 3rd session - Collective intelligence

Moderator - **Rui Costa**

*Understanding the world collectively*

**Gonzalo de Polavieja**

*Simple minds living in complex social worlds*

**Rui Oliveira**

*Brain vs. machine control, which one gets the power?*

**Jose Carmena**

Conferência | *Keynote lecture*

*Collective intelligence as a central characteristic of small groups*

**Christopher Chabris**



#### **Rui Costa**

Professor de Neurociências e Neurologia, Universidade Columbia, e Investigador Principal no *Columbia's Zuckerman Institute*, Nova Iorque, EUA. Co-diretor do *Champalimaud Research* e Investigador Principal do *Neurobiology of Action Lab., Champalimaud Centre for the Unknown*, Programa de Neurociências, Lisboa, Portugal. Interesses científicos: mecanismos moleculares, celulares e de sistemas de geração da ação, sequência e aprendizagem de competências, ações intencionais vs. hábitos, abordagem de diferentes níveis para o estudo das perturbações cognitivas e senso-motoras em modelos de rato (PD, TOC, NFI e autismo).

*Professor of Neuroscience and Neurology, Columbia University and Principal Investigator at Columbia's Zuckerman Institute, New York, USA. Co-director of Champalimaud Research and Principal Investigator of the Neurobiology of Action Lab., Champalimaud Centre for the Unknown, Neuroscience Programme. Lisbon, Portugal. Scientific interests: molecular, cellular and systems mechanisms of action generation, sequence and skill learning, goal-directed actions versus habits, across-level approach to study cognitive and sensorimotor disorders in mouse models (PD, OCD, NFI and autism).*

## UNDERSTANDING THE WORLD COLLECTIVELY

### Gonzalo de Polavieja

I will discuss how animals, including humans, act in the environment not only using their private information but also socially obtained information. The way we combine private and social information makes us go beyond the capabilities of a single brain. I will discuss under what conditions this is possible and when its darker side of cascades of mistakes in groups takes place. I will explain the evidence in favor of different modes of collective decisions, from pooling of independent decisions to consensus-based ones. Finally, I will discuss whether we can aid humans with extra algorithms, for example based on AI, to improve group performance.



#### Gonzalo de Polavieja

Investigador Principal do *Collective Behavior Lab*, *Champalimaud Centre for the Unknown*, Programa de Neurociências, Lisboa, Portugal. Interesses científicos: comportamento quantitativo, neurobiologia da tomada de decisão e da aprendizagem, comportamento coletivo, interações sociais e biologia matemática.

*Principal Investigator of Collective Behavior Lab, Champalimaud Centre for the Unknown, Neuroscience Programme. Lisbon, Portugal. Scientific interests: quantitative behavior, neurobiology of decision-making and learning, collective behavior, social interactions and mathematical biology.*

## SIMPLE MINDS LIVING IN COMPLEX SOCIAL WORLDS

Rui Oliveira

The relationship between social relationships and health has long been established in epidemiological literature. Social support has been proposed as a mediator mechanism for these effects in humans, and “higher-vertebrate” models (i.e. primates, rodents) have been used to assess its neural and molecular underpinnings. However, the implicit assumption that social support requires the occurrence of complex social interactions that demand higher cognitive abilities has prevented the use of simpler model organism with a high potential for genetic analysis (e.g. fruit-flies, zebrafish). In this talk I will: (1) present evidence that zebrafish exhibit a number of cognitive adaptations for group living (social preference, social memory, eavesdropping, audience effects) that make them a valid model for studying individualized social interactions (aka social relationships); (2) show that social buffering (aka social support) of stress and fear responses also occurs in zebrafish; and (3) present a conceptual framework, validated by empiric evidence on zebrafish, showing that social information use per se can explain the occurrence of social buffering as well as its reverse (i.e. social contagion of stress/ fear), without requiring elaborated cognitive or emotional (e.g. empathy) abilities. Therefore, even simple-minded animals show adaptive physiological and behavioral responses to complex social environments.



### Rui Oliveira

Investigador Principal do Grupo de Investigação em Biologia Integrativa do Comportamento, Instituto Gulbenkian de Ciência; Professor Catedrático e Reitor do ISPA - Instituto Universitário, Lisboa, Portugal. Interesses científicos: neurobiologia do comportamento social, modulação social do cérebro e do comportamento, evo-devo da cognição social, mecanismos genómicos e epigenéticos da plasticidade social, enviesamento cognitivo e susceptibilidade/resiliência à doença.

*Principal Investigator of the Integrative Behavioural Biology Research Group, Gulbenkian Institute of Science; Professor of Psychobiology and Dean of ISPA - University Institute, Lisbon, Portugal. Scientific interests: neurobiology of social behavior, social modulation of brain and behavior, evo-devo of social cognition, genomic and epigenetic mechanisms of social plasticity, cognitive bias and susceptibility/resilience to disease.*

## BRAIN VS. MACHINE CONTROL, WHICH ONE GETS THE POWER?

Jose Carmena

Brain-machine interface (BMI) technology holds great potential to aid large numbers of people with sensory, motor and cognitive disabilities. The BMI paradigm is based on the idea that a human user could enact voluntary motor intentions through a direct interface between the brain and an artificial actuator in virtually the same way that we see, walk, or grab an object with our own natural limbs. Proficient brain control of an external device or actuator should be achievable through training using any combination of visual, tactile, or auditory feedback. As a result of long-term use of the BMI, the brain incorporates (or adapts to) the artificial actuator as an extension of its own body.

The past decade has witnessed a dramatic increase in BMI-related studies in academic institutions around the world. Subjects have learned to utilize their brain activity for different purposes, ranging from electroencephalogram - and electrocorticographic -based systems, in which human subjects control computer cursors, to multielectrode-based systems, in which monkeys and humans control the movements of cursors and robots to perform different kinds of reaching and grasping tasks. These examples of what could be called the first generation of BMIs have something in common: they have been exclusively controlled by neural signals. Even with BMIs that use neural activity recorded with invasive electrodes to yield higher bandwidth and thus allow for the execution of more complex tasks, it remains unclear whether the quality of the signal will ever suffice for a patient to freely, safely, and effectively control a prosthetic arm to perform daily tasks. For instance, the level of motor skill required for dexterous finger manipulation is outstanding. Planning paths and avoiding obstacles while reaching and grasping in unconstrained environments requires similarly fine motor control. Thus, realistic motion through a complex environment with a BMI is extremely challenging and, perhaps, not feasible with the relatively low bandwidth of current BMIs.

What does this mean for second-generation BMIs? The field is evolving towards hybrid systems that incorporate both neuronal and artificial control signals, also known as shared controlled systems, exploiting the fields of machine learning and control theory. In principle, these hybrid BMIs will allow the user to accomplish a task more efficiently than those relying on neuronal signals alone. For example, in a common task such as reaching for and grasping a glass of water, a hybrid BMI will be fed with both brain and machine control signals; the intention of movement will be decoded directly from neuronal signals, leaving obstacle avoidance and grasping stabilization to the artificial control module of the system. Such a module will get inputs from sensors embedded in the robot, and will produce a control signal that will fuse with the neuronal control signal to augment the final output command.

What ratio of neuronal versus artificial signal will be needed for optimal control of the BMI? This question introduces serious safety and ethical considerations that have been typically characterized in the science fiction literature as an imbalance in favor of machine control, resulting in catastrophic consequences. Hence, safeguarding measures will be needed to avoid dangerous situations when a chronic neuroprosthesis freely interacts with the real world. For both science and science fiction, the question is the same. Brain and machine: which one gets the power?



**Jose Carmena**

Professor de Engenharia Elétrica e Neurociências, Departamento de Engenharia Elétrica e de Ciências da Computação, *Helen Wills Neuroscience Institute*. Universidade da Califórnia, Berkeley, EUA. Interesses científicos: dinâmica das redes neuronais de larga-escala envolvidas na aprendizagem, mecanismos neuronais da ação, controle motor e neuroplasticidade. Interação mente-máquina, algoritmos para a adaptação da descodificação de um circuito fechado, sistema neuroprotético e computação de conjuntos de redes neuronais.

*Professor of Electrical Engineering and Neuroscience, Department of Electrical Engineering and Computer Sciences, Helen Wills Neuroscience Institute, University of California, Berkeley, USA. Scientific interests: large-scale neural circuit dynamics during learning, neural mechanisms of action, motor control and neuroplasticity. Brain-machine interface, algorithms for closed circuit decoder adaptation, neuroprosthetic systems and sets of neural networks computation.*

# COLLECTIVE INTELLIGENCE AS A CENTRAL CHARACTERISTIC OF SMALL GROUPS

## Christopher Chabris

Much important work is performed by small groups of people who collaborate. This is increasingly true in scientific and academic disciplines, as well as in business and government. Borrowing from the long tradition of research on individual cognitive ability, which has found that people who perform well on one cognitive task tend to perform well on other tasks - the basis of the phenomenon known as "general intelligence", which is measured by IQ tests - we looked for the same phenomenon in small teams.

Over several studies involving hundreds of teams and thousands of individuals, my colleagues and I have found that task performance is indeed correlated across teams, with a general factor explaining about as much of the variance in team performance as it does in individual performance of cognitive tasks. We label this factor "collective intelligence". We also found that teams with more evenly distributed member contributions, with members who score higher in social intelligence, and with more women, tend to exhibit greater collective intelligence. The collective intelligence of a team predicts how well it will perform over extended periods in complex tasks.

In this talk I will review research on the collective intelligence of small groups and discuss some current and future research directions in this area. I will also distinguish between this form of collective intelligence and other ways in which the same term is used to describe different (but related) concepts. The main conclusion will be that just as we cannot fully understand individual differences in behavior without accounting for differences in individual intelligence, we must consider the collective intelligence of small groups to understand why groups differ so much in their performance and outcomes.



### Christopher Chabris

Professor, *Geisinger Health System*, Lewisburg, Pensilvânia, EUA; Professor Associado de Psicologia, *Union College*, Schenectady, Nova Iorque, EUA. Interesses científicos: atenção, inteligência (individual, coletiva e social), genética comportamental, tomada de decisão, jogos de vídeo e ciência cognitiva.

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**07.04 | sábado | Saturday**

Mesa-redonda | *Round-table*

*Ethics of enhancement*

Chairman | **Axel Cleeremans**

Participants: **Lorenza Colzato, Etzel Cardeña, Anjan Chatterjee, Jean-Nöel Missa**

**Resumo do poster apresentado pela Fundação Bial**  
***Abstract of the poster presented by the Bial Foundation***

**HOW WELL DOES THE RESEARCH SUPPORTED BY THE BIAL FOUNDATION PERFORM?  
A BIBLIOMETRIC ASSESSMENT**

Marinho, S., Guedes, P., & Sousa, N.

Fundação BIAL

**Background:** Created in 2014, the BIAL Foundation's online database, which gathers all funded projects' scientific publications, has enabled a more systematic and quantitative assessment of the projects' productivity over the years. Bibliometric indicators have been widely used and proven to be useful tools in the assessment of the research performance, provided that their pitfalls are taken into consideration and they are combined with more qualitative knowledge about the projects to be assessed.

**Aims:** To analyse and to monitor the research productivity and impact of projects supported by the BIAL Foundation by using bibliometric indicators.

**Method:** The research projects' productivity was assessed by counting the number of papers published in academic journals indexed by Scopus or Web of Science (WoS). The publications' impact was assessed by the number of citations per item retrieved from WoS Core Collection in March 2018. This information was used to manually calculate the total number of times cited and the average citations per item. Combining the productivity (total number of papers published) and the impact (number of citations for each paper) the BIAL Foundation's *h*-index was calculated, where *h* equalled the number of publications for which it received at least *h* citations each. For papers published from 2007 to 2017, the number of citations were compared with the expected number of citations for papers in the same research field and publication year, based on field baselines percentiles dataset of Essential Science Indicators (ESI), updated on January 1<sup>st</sup>, 2018. The Highly Cited Papers, featuring those that ranked in the top 1% by citations for field and publication year in WoS, were also retrieved. The quality of journals was assessed by their impact factor and mainly by their quartile score (provided by Journal Citation Reports) in order to mitigate differences between research fields. When a journal occupied different positions in the quartile ranking (Q1, Q2, Q3 or Q4) depending on the subject category with which it was associated, the best one was chosen. These results were compared with the previous assessment made in March 2016 to pinpoint the major improvements achieved in these last 2 years.

**Results:** Since 1994, the BIAL Foundation has supported 614 research projects in the areas of Psychophysiology (308 grants, 50%), Parapsychology (207 grants, 34%) and Interdisciplinary – a combination of Psychophysiology and Parapsychology (99 grants, 16%). Overall, 910 indexed papers (journal article, review, conference paper, letter, book and book chapter) were published from 1995 to 2018. Excluding the last two grant editions (2014/15 and 2016/17), in which most projects are still ongoing or starting, a ratio of 1.76 indexed papers per project was obtained (806 papers per 459 projects).

Currently, the BIAL Foundation has 136 ongoing projects. It is worth noting that some projects of the last grant edition, which started during 2017, have already a substantial number of published papers. In 2016, 91 indexed papers were published, representing an increase of 26% when compared to 2015.

Overall, a total of 12.737 citations were counted, with 756 papers being cited on average 17 times ( $M = 16.85$ ), ranging from 0 to 353 citations. The BIAL Foundation *h*-index was 52. In the last 10 years, almost 20% of the papers ranked in the top 10% by citations for field and publication year.

749 papers were published in journals with an average impact factor of 3.5. In comparison with the previous analyses made in 2016, an additional 210 papers were published. This represents an increase of 39%. The majority of papers were published in journals of quartile 1 ( $n = 360$ ; 48%) and quartile 2 ( $n = 183$ ; 24%).

**Conclusion:** The systematic qualitative analyses of scientific reports alongside the use of conventional and up-to-date bibliometric indicators provide a reliable assessment of the quality, quantity and impact of the scientific research supported by the BIAL Foundation. When comparing the present results with the previous assessment conducted in 2016, the steady increase of indexed papers and higher number of citations is noteworthy. This improvement aligns with BIAL Foundation's primary goal: to promote research of excellence.

**Keywords:** BIAL Foundation grants, Indexed publications, Citations, Impact factor, Quartiles.



***Posters with final results presented by the Bial Foundation grant holders  
and/or available at [www.fundacaobial.com](http://www.fundacaobial.com)***

**2010**

**128/10 - “Extending the spiritual healing paradigm to explore distant mental interaction effects with Wiccan healers”**

Investigadores/Researchers: Chris Roe, Charmaine Marie Sonnex  
Instituição/Institution: Centre for the Study of Anomalous Psychological Processes (CSAPP), University of Northampton, Psychology Division, Northampton (UK)  
Duração estimada/Estimated duration: 2014/10 – 2018/04

**2012**

**51/12 - “The interpretation and evaluation of meaningful coincidences suggestive of psi communication in everyday life”**

Investigadores/Researchers: Robin Wooffitt, Germaine Gunther  
Instituição/Institution: Anomalous Experiences Research Unit, Dep. of Sociology, University of York (UK)  
Duração/Duration: 2013/09 – 2018/01

**87/12 - “Neurobiological correlates of empathy in couples: A study of central and peripheral measures”**

Investigadores/Researchers: Joana Fernandes Pereira Coutinho, Cledna Patrícia de Oliveira Silva, Jean Decety, Kristin Perrone McGovern, Óscar Filipe Coelho Neves Gonçalves, Vânia Andrea Sousa Gonçalves Moreira de Lima  
Instituição/Institution: Centro de Investigação em Psicologia, Escola de Psicologia, Universidade do Minho, Braga (Portugal)  
Duração/Duration: 2013/05 – 2017/07

**98/12 - “Eye-brain dynamics during the emergence of three-dimensional perceptual awareness in Humans” - only abstract available**

Investigadores/Researchers: Rafael Malach, Amos Arieli  
Instituição/Institution: Department of Neurobiology - The Weizmann Institute of Science, Rehovot (Israel)  
Duração estimada/Estimated duration: 2013/07 - 2018/04

**130/12 - “Neural mechanisms of cognitive bias”**

Investigadores/Researchers: Rui Filipe Nunes Pais de Oliveira, Ana Félix, Sara Cardoso  
Instituição/Institution: ISPA, CRL, Lisbon and Instituto Gulbenkian de Ciência, Oeiras (Portugal)  
Duração estimada/Estimated duration: 2013/09 – 2018/04

**157/12 - “Contributions of parent-infant psychophysiology during dyadic interactions to child development”**

Investigadores/Researchers: Raquel Alexandra Gonçalves Costa, Iva Tendais, Ana Conde, Catarina Tojal  
Instituição/Institution: ISLA Campus Lisboa, Laureate International Universities, Lisboa (Portugal)  
Duração/Duration: 2013/10 – 2016/11

**178/12 - “How collaboration in psychotherapy becomes therapeutic: A study of interactive and psychophysiological processes in good and poor outcome cases”**

Investigadores/Researchers: Eugénia Maria Ribeiro Pereira, Adriana Sampaio, Cledna Patrícia Silva, António P. Ribeiro, Adam O. Horvath, William B. Stiles, Inês Sousa, Joana Mourão, Dulce Pinto, Zita Sousa  
Instituição/Institution: Centro de Investigação em Psicologia (CIPsi/UM), Escola de Psicologia, Universidade do Minho, Braga (Portugal)  
Duração/Duration: 2013/06 – 2017/01

**185/12 - “Circuit mechanisms of spatial attention in the zebrafish midbrain”**

Investigadores/Researchers: Michael Brian Orger, Sabine L. Renninger  
Instituição/Institution: Fundação Champalimaud, Lisboa (Portugal)  
Duração/Duration: 2013/06 – 2017/07

**192/12 - “Effects of conditional foxp2 deletion on motor-sequence learning”**

Investigador/Researcher: Catherine Ann French  
Instituição/Institution: Fundação Champalimaud, Lisboa (Portugal)  
Duração/Duration: 2013/06 – 2016/07

**253/12 - “REM-sleep, the regulation of self-conscious emotion and hyperarousal in psychophysiological insomnia” - only abstract available**

Investigadores/Researchers: Lucia Talamini, Ekaterini Georgopoulou, Eus Van Someren  
Instituição/Institution: University of Amsterdam, Psychology, Dept. Brain and Cognition (The Netherlands) and Netherlands Institute for Neuroscience, Dept. Sleep & Cognition, Amsterdam (The Netherlands)  
Duração/Duration: 2015/11 – 2017/09

**262/12 - “The neural basis of magical ideation: A multimodal imaging study in twin subjects” - only abstract available**

Investigadores/Researchers: Paolo Brambilla, Gioia Negri, Sara Piccin, Giuseppe Cabras, Corrado Fagnani  
Instituição/Institution: Università degli Studi di Milano and Unit of Epidemiology of the Italian Institute of Health, Rome (Italy)  
Duração/Duration: 2014/01 – 2018/04

**2014**

**51/14 - “The dissociated self: An investigation of emotional responses to a new body-threat task in those predisposed to anomalous body experiences, dissociation and disembodiment” - only abstract available**

Investigador/Researcher: Jason John Braithwaite  
Instituição/Institution: School of Psychology, University of Birmingham (UK)  
Duração estimada/Estimated duration: 2015/09 – 2018/04

**83/14 - "Electrophysiological correlates of the incorporation of recent memory sources into REM and non-REM dreams and of levels of insight following REM and non-REM dream interpretation"**

Investigadores/Researchers: Mark Blagrove, Chris Edwards, Jean-Baptiste Eichenlaub, Perrine Ruby  
Instituição/Institution: College of Human and Health Sciences, Department of Psychology, Swansea University (UK)  
Duração/Duration: 2015/03 – 2017/11

**118/14 - "Recursive consciousness training: Using neurofeedback to induce altered states"**

Investigadores/Researchers: Amir Raz, Niels Birbaumer, Robert T Thibault  
Instituição/Institution: Montreal Neurological Institute, McGill University (Canada); Institute of Medical Psychology and Behavioral Neurobiology, University of Tübingen (Germany)  
Duração/Duration: 2015/09 – 2017/11

**121/14 - "Maternal brain gain: Changes in neural representations and body perception during pregnancy"** - only abstract available

Investigadores/Researchers: Jane Aspell, Flavia Cardini  
Instituição/Institution: Anglia Ruskin University, Cambridge (UK)  
Duração estimada/Estimated duration: 2015/11 - 2018/04

**122/14 - "Internal and external world in parietal cortex"** - only abstract available

Investigador/Researcher: Paolo Capotosto  
Instituição/Institution: Department of Neuroscience, Imaging and Clinical Science, University "G. D'Annunzio", Chieti (Italy)  
Duração/Duration: 2015/02 – 2016/09

**128/14 - "Autonomic nerve recordings applied as a novel psychophysiological tool for Consciousness Science"**

Investigadores/Researchers: Hugo Dyfrig Critchley, Peter Taggart, Yrsa Sverrisdóttir  
Instituição/Institution: Brighton and Sussex Medical School, University of Sussex (UK); Department of Physiology, Anatomy and Genetics, University of Oxford (UK)  
Duração estimada/Estimated duration: 2015/09 - 2018/04

**143/14 - "From audio-visual perception to action: The processing of spatio-temporal components"**

Investigadores/Researchers: Sandra Mouta, Joana Vieira, Mariana Silva  
Instituição/Institution: Association/ZGDV-Centro de Computação Gráfica, Guimarães (Portugal)  
Duração estimada/Estimated duration: 2015/10 – 2018/04

**150/14 - "Measuring the self: Behavioural and neural correlates of bodily awareness"** - only abstract available

Investigadores/Researchers: Emmanuele Tidoni, Gaetano Tieri, Matteo Candidi, Salvatore Maria Aglioti  
Instituição/Institution: Social Cognitive Neuroscience Laboratory, Department of Psychology, University of Rome "La Sapienza" (Italy)  
Duração/Duration: 2015/02 – 2017/03

**163/14 - "Sacred values underlying conflict proneness: A neuroimaging study of religious and nationalist radicals"**

Investigadores/Researchers: Adolf Tobena, Clara Petrus, Joseph Hilferty, Oscar Vilarroya, Scott Atran  
Instituição/Institution: Department of Psychiatry and Forensic Medicine UAB, Bellaterra Campus (Spain)  
Duração estimada/Estimated duration: 2015/02 – 2018/04

**180/14 - "Neural mechanisms of word learning: Contributions from amnesic patients and fMRI on healthy ageing"** - only abstract available

Investigadores/Researchers: Tânia Patrícia Gregório Fernandes, Ana Luísa Nunes Raposo, Maria Isabel Segurado Pavão Martins Catarino Petiz, Rita Isabel Saraiva Jerónimo  
Instituição/Institution: Faculdade de Psicologia da Universidade de Lisboa - FP-ULisboa (Portugal)  
Duração estimada/Estimated duration: 2016/02 - 2018/02

**206/14 - "Examination of brain coordination dynamics underlying hypnosis and volitional acts using intracranial electroencephalography"** - only abstract available

Investigadores/Researchers: Jose Luis Perez Velazquez, Navinder Persaud, Taufik A. Valiante  
Instituição/Institution: Hospital for Sick Children, Neurology, University of Toronto (Canada); Toronto Western Hospital (Canada)  
Duração/Duration: 2015/05 – 2017/11

**228/14 - "Pushing consciousness and selfhood towards their boundaries - An EEG neurophenomenological study"**

Investigadores/Researchers: Joseph Glicksohn, Aviva Berkovich-Ohana, Tal Dotan Ben-Soussan  
Instituição/Institution: Bar-Ilan University, Ramat Gan (Israel); Fondazione Patrizio Paoletti, Assisi (Italy)  
Duração estimada/Estimated duration: 2015/02 - 2018/04

**233/14 - "Training anomalous cognition in a motor task with subliminal auditory feedback"**

Investigador/Researcher: John Albert Palmer  
Instituição/Institution: Rhine Research Center, Durham, NC (USA)  
Duração/Duration: 2015/04 – 2018/02

**244/14 - "Induced brain plasticity after perinatal stroke: Structural and functional connectivity"**

Investigadores/Researchers: Antoni Rodríguez-Fornells, Alfredo García-Alix, Carme Fons, Clément François, Jordi Muchart, Laura Bosch, Mónica Rebollo, Pablo Ripollés  
Instituição/Institution: Department of Basic Psychology, University of Barcelona (Spain); Hospital Sant Joan de Deu, Esplugues de Llobregat (Spain)  
Duração/Duration: 2015/02 – 2017/09

**246/14 - "Anomalous/paranormal experiences reported by nurses themselves and in relation with their patients in hospitals: Examining psychological, personality and phenomenological variables"**

Investigador/Researcher: Alejandro Enrique Parra  
Instituição/Institution: Instituto de Psicología Paranormal, Buenos Aires (Argentina)  
Duração/Duration: 2015/03 – 2017/03

**253/14 - "The impact of lipid signaling modulation in cognition"**

Investigadores/Researchers: Tiago Gil Rodrigues Oliveira, Isabel Maria Sousa Castanho, Neide Marina Vieira Pereira, Rita Catarina Ribeiro da Silva, Vítor Manuel da Silva Pinto  
Instituição/Institution: Life and Health Sciences Institute - ICVS, School of Health Sciences, University of Minho, Braga (Portugal)  
Duração estimada/Estimated duration: 2015/05 – 2018/04

**257/14 - “Genetics of psychic ability”** - only abstract available  
Investigadores/*Researchers*: Dean Radin, Garret Yount, Garry Nolan  
Instituição/*Institution*: Institute of Noetic Sciences, Petaluma, California (USA); Stanford University (USA)  
Duração estimada/*Estimated duration*: 2015/07 - 2018/04

**260/14 - “Psi-Q: A smartphone testing suite for psi ability”** - only abstract available  
Investigadores/*Researchers*: Dean Radin, Arnaud Delorme  
Instituição/*Institution*: Institute of Noetic Sciences, Petaluma, California (USA)  
Duração/*Duration*: 2015/07 - 2017/07

**279/14 - “Facial and bodily temperature maps of emotions”**  
Investigadores/*Researchers*: Maria Lucia Martins das Neves Garrido, Lisa Katharina Kuhn, Nicholas Pound  
Instituição/*Institution*: Division of Psychology, Department of Life Sciences, Brunel University, Uxbridge (UK)  
Duração estimada/*Estimated duration*: 2015/01 - 2018/04

**282/14 - “The mindful eye: Smooth pursuit and saccadic eye movements in meditators and non-meditators”**  
Investigadores/*Researchers*: Veena Kumari, Elena Antonova  
Instituição/*Institution*: Institute of Psychiatry, King’s College London (UK)  
Duração/*Duration*: 2015/04 - 2017/01

**287/14 - “Cryptochrome (CRY) and Intention”**  
Investigadores/*Researchers*: Yung-Jong Shiah, Hsu-Liang Hsieh, Dean Radin  
Instituição/*Institution*: Graduate Institute of Counseling Psychology and Rehabilitation Counseling of the National Kaohsiung Normal University, Kaohsiung (Taiwan); Photobiology Lab, Taipei (Taiwan)  
Duração/*Duration*: 2015/09 - 2017/06

**308/14 - “A study of heterogeneity in parapsychological databases”** - only abstract available  
Investigador/*Researcher*: Peter Amalric Bancel  
Instituição/*Institution*: Institute of Noetic Sciences, Petaluma, California (USA); Institut Métapsychique International, Paris (France)  
Duração estimada/*Estimated duration*: 2015/06 - 2018/04

**318/14 - “Neural correlates of tracking changing positions of objects”** - only abstract available  
Investigadores/*Researchers*: Christina Jayne Howard, Matthew K Belmonte  
Instituição/*Institution*: Division of Psychology, Nottingham Trent University (UK)  
Duração/*Duration*: 2015/02 - 2017/07

**340/14 - “A question of belief: An analysis of item content in paranormal belief questionnaires”**  
Investigadores/*Researchers*: Lance Storm, Ken Drinkwater, Tony Jinks  
Instituição/*Institution*: Brain and Cognition Centre, School of Psychology, University of Adelaide (Australia); Department of Psychology, Faculty of Health, Psychology and Social Care, Manchester (UK)  
Duração/*Duration*: 2015/04 - 2017/07

**344/14 - “An integrative approach to the neural basis of hypnotic suggestibility”**  
Investigador/*Researcher*: Devin Blair Terhune  
Instituição/*Institution*: Goldsmiths, University of London (UK)  
Duração/*Duration*: 2015/04 - 2016/07

**355/14 - “Cognitive and personality differences in supernatural belief”**  
Investigadores/*Researchers*: Ian Scott Baker, David Sheffield, Malcolm Schofield, Paul Staples  
Instituição/*Institution*: College of Life and Natural Sciences, University of Derby (UK)  
Duração/*Duration*: 2015/06 - 2017/09

**366/14 - “Changes in subjective time as indication of increased mindfulness after meditation”**  
Investigador/*Researcher*: Marc Christoph Wittmann  
Instituição/*Institution*: Institute for Frontier Areas of Psychology and Mental Health, Freiburg (Germany); Department of Psychosomatic Medicine, University Medical Center Freiburg (Germany)  
Duração estimada/*Estimated duration*: 2015/04 - 2018/04

**372/14 - “Development and implementation of a comprehensive survey of secular American mediums”** - only abstract available  
Investigadores/*Researchers*: Julie Beischel, Chad Mosher, Mark Bocuzzi  
Instituição/*Institution*: The Windbridge Institute for Applied Research in Human Potential, Tucson (USA)  
Duração estimada/*Estimated duration*: 2015/07 - 2018/04

**373/14 - “Multimodal mapping of visual motion perceptual decision: Dissecting the role of different motion integration areas in visual surface reconstruction”**  
Investigadores/*Researchers*: Miguel de Sá e Sousa de Castelo Branco, Gabriel Nascimento Ferreira da Costa, Gilberto Silva, João Valente Duarte, Ricardo Martins  
Instituição/*Institution*: ICNAS - Institute for Nuclear Sciences Applied to Health, Coimbra (Portugal); IBIL - Institute for Biomedical Imaging and Life Sciences, Coimbra (Portugal)  
Duração/*Duration*: 2016/02 - 2017/10

**380/14 - “Using neural stimulation to modulate paranormal beliefs”**  
Investigadores/*Researchers*: Miguel Farias, Ute Kreplin  
Instituição/*Institution*: Centre for Research in Psychology, Behaviour and Achievement, Coventry University (UK)  
Duração/*Duration*: 2015/12 - 2017/10

**385/14 - “Affective and cognitive modulation of pain by using real-time fMRI neurofeedback”**  
Investigadores/*Researchers*: Pedro Jose Montoya Jimenez, Beatriz Rey Solaz, Inmaculada Riquelme, Miguel Angel Munoz Garcia, Niels Birbaumer  
Instituição/*Institution*: Research Institute on Health Sciences, University of Balearic Islands, Palma (Spain)  
Duração estimada/*Estimated duration*: 2015/03 - 2018/04

**386/14 - “Remote meditation support - A multimodal distant intention experiment”**  
Investigadores/*Researchers*: Stefan Schmidt, Han-gue Jo, Marc Wittmann, Thilo Hinterberger, Wolfgang Ambach  
Instituição/*Institution*: Department of Psychosomatic Medicine, University Medical Center Freiburg (Germany); Institut für Grenzgebiete der Psychologie und Psychohygiene, Freiburg (Germany)  
Duração estimada/*Estimated duration*: 2015/05 - 2018/04

**388/14 - “Are free will and moral responsibility real or illusory? On the causal role of consciousness in decision-making, a combined EEG and intracranial study”** - only abstract available

Investigador/Researcher: Uri M. Mazz

Instituição/Institution: California Institute of Technology – Caltech, Pasadena (USA)

Duração estimada/Estimated duration: 2016/02 - 2018/04

**400/14 - “Is the matrix-experiment really a robust and artifact free experimental model to demonstrate generalized entanglement effects?”**

Investigador/Researcher: Harald Walach

Instituição/Institution: Institute of Transcultural Health Studies, European University Viadrina, Frankfurt Oder (Germany)

Duração estimada/Estimated duration: 2016/01 - 2018/06

**402/14 - “Skin Conductance Feedback Meditation (SCFM) – Exploring the role of skin conductance in meditative practice”**

Investigador/Researcher: Thilo Hinterberger

Instituição/Institution: Department of Psychosomatic Medicine, Clinic of the University of Regensburg (Germany)

Duração estimada/Estimated duration: 2016/03 - 2018/04

**413/14 - “The role of dopamine in behavioral exploration and action selection”**

Investigador/Researcher: Aaron Christopher Koralek

Instituição/Institution: Champalimaud Neuroscience Programme, Lisboa (Portugal)

Duração estimada/Estimated duration: 2015/03 – 2018/04

**480/14 - “The role of experimenter and participant mindset in the replication of psi experiments: Phase II of a global initiative”**

Investigador/Researcher: Marilyn Schlitz

Instituição/Institution: Institute of Noetic Sciences, Petaluma, California (USA)

Duração/Duration: 2015/07 - 2017/07

**489/14 - “An examination of the effects of mood and emotion on a real-world computer system and networking environment”**

Investigador/Researcher: John G. Kruth

Instituição/Institution: Rhine Research Center, Durham (USA)

Duração estimada/Estimated duration: 2015/05 - 2018/04

**495/14 - “Episodic memory enhancement in aging: The role of cognitive training combined with (bilateral) tDCS in the medial-temporal cortex and cerebellum on episodic memory performance in the elderly”**

Investigadores/Researchers: Mário Manuel Rodrigues Simões, Filipe Fernandes, Jorge Evandro de Araújo Alves, Marcel Simis, Ana Rita Simões Martins, Jorge Almeida

Instituição/Institution: CINEICC - Centro de Investigação do Núcleo de Estudos e Intervenção

Cognitivo-Comportamental/Universidade de Coimbra (Portugal)

Duração estimada/Estimated duration: 2015/07 - 2018/04

**506/14 - “The Selfield: Optimizing precognition research”**

Investigadores/Researchers: Mario Varvoglis, Peter Bancel

Instituição/Institution: Institut Metapsychique International, Paris (France); Institute of Noetic Sciences, Petaluma, California (USA)

Duração estimada/Estimated duration: 2015/09 - 2018/04

**534/14 - “Exploring unconscious knowledge: Individual differences in ideomotor response”** - only abstract available

Investigadores/Researchers: Jeremy Olson, Amir Raz, Mathieu Landry

Instituição/Institution: Raz Cognitive Neuroscience Lab, McGill University, Montreal (Canada); Montreal Neurological Institute (Canada)

Duração/Duration: 2015/08 - 2017/06

**“The Aging Social Brain - Neural and behavioral age-related changes in social cognition and decision-making”**

Investigadores/Researchers: João Eduardo Marques Teixeira, Manuel Fernando Santos Barbosa, Fernando Ricardo Ferreira Santos, Pedro Manuel Rocha Almeida, Hugo Daniel Leão Sousa

Instituição/Institution: Faculdade de Psicologia e de Ciências da Educação, Universidade do Porto (Portugal)

Duração/Duration: 2014/11 – 2018/01

**“Aware Mind-Brain: Bridging insights on the mechanisms and neural substrates of human awareness and meditation”**

Investigadores/Researchers: Antonino Raffone, Salvatore Maria Aglioti, Henk P. Barendregt, Fabio M. Giromi, Juliana Jordanova, Peter Malinowski, Stephen Whitmarsh

Instituição/Institution: ECONA - Interuniversity Center for Cognitive Processing in Natural and Artificial Systems, Università degli Studi di Roma “La Sapienza” (Italy)

Duração estimada/Estimated duration: 2015/11 - 2018/04

## 2016

**97/16 - “Reproductive hormonal status as a predictor of precognition”**

Investigadores/Researchers: Julia Mossbridge, Daryl Bem

Instituição/Institution: Institute of Noetic Sciences, Petaluma, California (USA); Department of Psychology, Cornell University, Ithaca (USA)

Duração estimada/Estimated duration: 2017/02 – 2018/04

**124/16 - “The missing photon experiment: Does focused attention employ matter as an agent for interacting with light?”** - only abstract available

Investigador/Researcher: Loren Carpenter

Instituição/Institution: Institute of Noetic Sciences, Petaluma, California (USA)

Duração estimada/Estimated duration: 2017/02 – 2018/04

**Abstracts of ongoing projects supported by the Bial Foundation available at  
[www.fundacaobial.com](http://www.fundacaobial.com)**

**Should you need further information on any of these projects, please contact the Secretariat and we will be glad to introduce you to the researcher attending the symposium**

**2014**

**74/14 - “Optogenetic circuit dissection of neural instructive signals for cerebellum-dependent learning”**

Investigadores/*Researchers*: Dominique Leon Pritchett, Catarina Albergaria, Megan R. Carey  
Instituição/*Institution*: Champalimaud Centre for the Unknown, Lisboa (Portugal)  
Duração prevista/*Estimated duration*: 2015/06 - 2018/06

**85/14 - “The clinical gut: Examining the cognitive processes and neural underpinnings of judgments, feelings of rightness and its impact on information seeking”**

Investigadores/*Researchers*: Ana Sofia Bildeiro Jacinto Braga, Anne Krendl, Cara Charissa Lewis, Cilia Witteman, Elizabeth Collins, João Braga  
Instituição/*Institution*: Centro de Investigação e Intervenção Social (CIS-IUL), ISCTE - Instituto Universitário de Lisboa (Portugal); Department of Psychological and Brain Sciences - Indiana University Bloomington (USA)  
Duração prevista/*Estimated duration*: 2015/05 - 2019/08

**178/14 - “A study of the relationship between mindfulness, distraction and brain stimulation”**

Investigadores/*Researchers*: Fabrice Parmentier, Javier Garcia-Campayo, Margalida Gili-Planas, Mauro Garcia-Toro, Pilar Andrés  
Instituição/*Institution*: University of the Balearic Islands, Palma (Spain); Hospital Universitario Miguelñ Servet, Zaragoza (Spain)  
Duração prevista/*Estimated duration*: 2015/06 - 2019/06

**184/14 - “Decoding neural representations of human tool use from fMRI response patterns”**

Investigadores/*Researchers*: Stephanie Batista Rossit, Fraser Wilson Smith  
Instituição/*Institution*: School of Psychology, University of East Anglia, Norwich (UK)  
Duração prevista/*Estimated duration*: 2015/10 - 2018/10

**207/14 - “The role of astrocytes in complex cognitive processing”**

Investigadores/*Researchers*: João Filipe Pedreira de Oliveira, Joana Correia, Luísa Pinto, Nuno Dias, Sónia Guerra Gomes, Vanessa Sardinha  
Instituição/*Institution*: Life and Health Sciences Research Institute - ICVS/3B's - Government Associate Laboratory, Universidade do Minho, Braga (Portugal)  
Duração prevista/*Estimated duration*: 2015/10 - 2018/09

**234/14 - “Inhibitory processing in the aging brain: Disentangling the effects of age, chronotype, time of day and executive control”**

Investigadores/*Researchers*: José Augusto Simões Gonçalves Leitão, Ana Cardoso Allen Gomes, Chiara Guerrini, Isabel Maria Barbas dos Santos  
Instituição/*Institution*: Centro de Investigação do Núcleo de Estudos e Intervenção Cognitivo-Comportamental - CINEICC, Universidade de Coimbra (Portugal)  
Duração prevista/*Estimated duration*: 2016/01 - 2018/12

**242/14 - “The role of affective dimensions in the perception of facial expressions of emotion: Neuropsychophysiological, developmental, and neuroimaging examination of an affective predictive coding framework”**

Investigadores/*Researchers*: Fernando Ricardo Ferreira Santos, Eva Inês Costa Martins, Francisco Sá Ferreira Loureiro Pipa, Manuel Fernando Santos Barbosa, Michelle de Haan, Pedro Manuel Rocha Almeida, Tiago de Oliveira Paiva, Torsten Baldeweg  
Instituição/*Institution*: Laboratory of Neuropsychophysiology - Faculty of Psychology and Educational Sciences of the University of Porto (Portugal)  
Duração prevista/*Estimated duration*: 2015/10 - 2018/10

**251/14 - “Signal or noise? Using a psychophysical approach to investigate the effects of attention and neurofeedback training on electrocortical predictive anticipatory activity (PAA) to true random stimuli”**

Investigadores/*Researchers*: Michael Franklin, Jonathon Schooler, Stephen Baumgart  
Instituição/*Institution*: Department of Psychology and Brain Sciences, University of California at Santa Barbara (USA)  
Duração prevista/*Estimated duration*: 2015/04 - 2019/07

**268/14 - “EEG localization and individual variability in response to emotional stimuli”**

Investigadores/*Researchers*: William E. Bunney, Blynn G. Bunney, James Fallon, Joseph C. Wu, Julie Patterson, Richard Alan Stein  
Instituição/*Institution*: The Regents of the University of California, Irvine (USA)  
Duração prevista/*Estimated duration*: 2017/03 - 2018/11

**299/14 - “Neurofeedback-based adaptive audiovisual tutorial for enhancing multi-modal learning”**

Investigadores/*Researchers*: Rainer Wilhelm Goebel, Gal Raz, Talma Hendler  
Instituição/*Institution*: Maastricht Brain Imaging Centre, Maastricht University (The Netherlands); The Medical Research Infrastructure and health services fund at the Tel Aviv Medical center (Israel)  
Duração prevista/*Estimated duration*: 2015/12 - 2018/04

**304/14 - "The impact of music training on reading and mathematical abilities of normal and reading disabled children: a behavioral and neuroimaging longitudinal study"**

Investigadores/Researchers: Maria de São Luís Vasconcelos da Fonseca e Castro Schöner, Christian Gaser, Daniela da Costa Coimbra, Marta Sofia Pinto Martins  
Instituição/Institution: Faculty of Psychology and Educational Sciences at University of Porto, FPCEUP / Centre for Psychology at University of Porto (Portugal); Structural Brain Mapping Group/ Department of Psychiatry - Jena University Hospital (Germany)

Duração prevista/Estimated duration: 2015/10 - 2018/10

**339/14 - "Neural mechanisms of social cognition in zebrafish"**

Investigador/Researcher: Ana Rita Silva Martins Nunes  
Instituição/Institution: Instituto Gulbenkian de Ciência, Oeiras (Portugal)

Duração prevista/Estimated duration: 2015/05 - 2018/12

**343/14 - "Proteotoxic insults and synaptic dysfunction in the aging brain"**

Investigadores/Researchers: Cláudio Emanuel Moreira Gomes, Andreas Martin Grabrucker, Joana Margarida Lopes da Silva Cristóvão, Javier Fernandez, Rodrigo David, Mariana Romão, Simone Hagmeyer

Instituição/Institution: FCIências.ID – Associação para a Investigação e Desenvolvimento de Ciências (Portugal); Neurocenter of Ulm University (Germany)

Duração prevista/Estimated duration: 2015/06 - 2018/05

**376/14 - "Lateralisation of cognitive functions in the brain: Typical vs. atypical patterns"**

Investigador/Researcher: Deborah J Serrien  
Instituição/Institution: School of Psychology, University of Nottingham (UK)

Duração prevista/Estimated duration: 2015/10 - 2018/09

**395/14 - "Brain-to-brain communication: Evaluating the macro-entanglement hypothesis using fMRI technology"**

Investigador/Researcher: Leanna J. Standish  
Instituição/Institution: University of Washington, Radiology Department Diagnostic Imaging Sciences Center, Kenmore (USA)

Duração prevista/Estimated duration: 2016/02 - 2018/06

**427/14 - "Gliogenesis control of brain neuroplasticity, neurophysiology and cognitive function"**

Investigadores/Researchers: Luísa Alexandra Meireles Pinto, Ana Rita Machado dos Santos, António Maria Restolho Mateus Pinheiro, Joana Sofia da Silva Correia, João Filipe Pedreira de Oliveira, João Miguel Bessa Peixoto, Nuno Dinis Alves, Patrícia Carvalho Patrício, Vítor Manuel da Silva Pinto

Instituição/Institution: Life and Health Sciences Research Institute - ICVS/3B's - Government Associate Laboratory, Universidade do Minho, Braga (Portugal); Center for Neuroscience and Cell Biology, University of Coimbra (Portugal)  
Duração prevista/Estimated duration: 2015/09 - 2018/08

**442/14 - "Neurochemical substrates of neurofeedback"**

Investigadores/Researchers: Tomas Ros, Nathalie Ginovart  
Instituição/Institution: Interfaculty Center for Neuroscience, University of Geneva (Switzerland); Division of Nuclear Medicine, University Hospitals Geneva (Switzerland)  
Duração prevista/Estimated duration: 2016/04 - 2018/04

**526/14 - "Hypnosis unfolds: Hypnotic suggestion and patterns of whole-brain dynamics"**

Investigadores/Researchers: Marios Kittenis, Graham Jamieson

Instituição/Institution: Department of Psychology - School of Philosophy, Psychology and Language Sciences, University of Edinburgh (Scotland); Neuropsychology Lab, School of Behavioural, Cognitive, and Social Sciences, Armidale (Australia)

Duração prevista/Estimated duration: 2016/06 - 2018/07

**2016**

**30/16 - "Exploring the neural basis of motivation"**

Investigadores/Researchers: Ana João Rodrigues, Nivaldo Vasconcelos, Carina Cunha, Bárbara Coimbra, Laura Silva, Patrícia Monteiro, Sónia Borges, Pedro Morgado

Instituição/Institution: Life and Health Sciences Research Institute - ICVS, School of Health Sciences, University of Minho, Braga (Portugal)

Duração prevista/Estimated duration: 2017/01 - 2019/07

**32/16 - "Neural mechanisms of dream recall: Electrophysiological differences between young and older adults"**

Investigadores/Researchers: Serena Scarpelli, Luigi De Gennaro, Anastasia Mangiaruga, Chiara Bartolacci  
Instituição/Institution: Department of Psychology, University of Rome "La Sapienza" (Italy)

Duração prevista/Estimated duration: 2017/04 - 2019/04

**39/16 - "Considering voice hearing by psychic practitioners: A qualitative pluralistic investigation of mental health and well-being"**

Investigador/Researcher: Craig Murray  
Instituição/Institution: Division of Health Research, Lancaster University (UK)

Duração prevista/Estimated duration: 2017/05 - 2020/04

**44/16 - "Inducing and measuring plasticity in response control mechanisms in the human brain"**

Investigadores/Researchers: Alejandra Sel de Felipe, Matthew Rushworth

Instituição/Institution: Department of Experimental Psychology, University of Oxford (UK)

Duração prevista/Estimated duration: 2017/10 - 2018/10

**62/16 - "Imagination and reactance in a psi task using the imagery cultivation model and a fuzzy set encoded target pool"**

Investigador/Researcher: Lance Storm  
Instituição/Institution: Brain and Cognition Research Centre, School of Psychology, University of Adelaide (Australia)  
Duração prevista/Estimated duration: 2017/11 - 2018/08

**66/16 - "Mindfulness meditation shapes synchronization of brain networks for effective perceptual decision making"**

Investigador/Researcher: Laura Marzetti  
Instituição/Institution: Department of Neurosciences, Imaging and Clinical Sciences, University "G. D'Annunzio" of Chieti - Pescara (Italy)

Duração prevista/Estimated duration: 2017/09 - 2019/08

**72/16 - “A physiological examination of full-trance channeling”**

Investigadores/*Researchers*: Helané Wahbeh, Arnaud Delorme  
Instituição/*Institution*: Institute of Noetic Sciences, Petaluma, California (USA)  
Duração prevista/*Estimated duration*: 2017/09 – 2018/08

**76/16 - “Unleashing the hidden powers of the mind through manipulating belief in cognitive enhancement devices”**

Investigadores/*Researchers*: Michiel van Elk, Uffe Schjoedt, Marcel Brass  
Instituição/*Institution*: Department of Psychology, University of Amsterdam (The Netherlands); School of Culture and Society - Department of the Study of Religion, University of Aarhus (Denmark)  
Duração prevista/*Estimated duration*: 2017/03 – 2020/03

**86/16 - “Does cortical excitability predict out of body experience and anomalous perception in the non-clinical population”**

Investigador/*Researcher*: Elizabeth Milne  
Instituição/*Institution*: Department of Psychology, University of Sheffield (UK)  
Duração prevista/*Estimated duration*: 2017/09 – 2018/05

**100/16 - “Arousal effects on time perception and timed behaviour”**

Investigadores/*Researchers*: Ruth Ogden, Michael Richter, Francis McGlone  
Instituição/*Institution*: School of Natural Sciences and Psychology, Liverpool John Moores University (UK)  
Duração prevista/*Estimated duration*: 2017/09 – 2018/08

**111/16 - “A psychophysiological perspective of the transformative experience of pregnancy”**

Investigadores/*Researchers*: Helena Rutherford, Linda Mayes, Catherine Monk, Elizabeth Meins, Brianna Francis  
Instituição/*Institution*: Child Study Center – CSC, Yale University School of Medicine, New Haven (USA)  
Duração prevista/*Estimated duration*: 2017/03 – 2019/01

**114/16 - “Effects of a mindfulness-based intervention for teachers: A study on teacher and student outcomes”**

Investigadores/*Researchers*: Alexandra Marques-Pinto, Ana Pinheiro, Patricia Jennings, Mark Greenberg  
Instituição/*Institution*: Centro de Investigação em Ciência Psicológica- CICIPSI, Faculdade de Psicologia da Universidade de Lisboa (Portugal)  
Duração prevista/*Estimated duration*: 2017/01 – 2019/07

**117/16 - “Replication in parapsychology: The correlation matrix method”**

Investigadores/*Researchers*: Caroline Watt, Ana Flores  
Instituição/*Institution*: Koestler Parapsychology Unit, University of Edinburgh, Scotland (UK)  
Duração prevista/*Estimated duration*: 2017/01 – 2018/10

**122/16 - “A fully transparent pre-registered replication study of precognitive detection of reinforcement using an expert consensus design”**

Investigadores/*Researchers*: Zoltan Kekecs, Balazs Aczel, Bence Palfi, Aba Szollosi, Barnabas Szasz  
Instituição/*Institution*: Decision Making Laboratory, Faculty of Education and Psychology, Eotvos Lorand University, Budapest (Hungary)  
Duração prevista/*Estimated duration*: 2017/05 – 2019/07

**150/16 - “An investigation into the causal role of alpha oscillations in attention”**

Investigadores/*Researchers*: Alexander Jones, Jonathan Silas, Lars Wicke  
Instituição/*Institution*: The Behavioural, Affective, and Cognitive Neuroscience research group - BACneuro, Middlesex University London (UK)  
Duração prevista/*Estimated duration*: 2017/03 – 2019/02

**152/16 - “The role of the lateral occipital area in the visual processing of object size, shape, and orientation within and outside conscious awareness”**

Investigadores/*Researchers*: Philippe Chouinard, Irene Sperandio, Robin Laycock  
Instituição/*Institution*: La Trobe University, Melbourne (Australia); School of Psychology, University of East Anglia, Norwich (UK)  
Duração prevista/*Estimated duration*: 2017/03 – 2019/02

**157/16 - “Estranged from oneself, estranged from the others: Investigating the effect of depersonalisation on self-other mirroring”**

Investigadores/*Researchers*: Ana Ciaunica, Harry Farmer, Ophelia Dero, Vittorio Gallese  
Instituição/*Institution*: Institute of Philosophy Porto, University of Porto (Portugal); Institute of Cognitive Neuroscience, University College London (UK)  
Duração prevista/*Estimated duration*: 2017/05 – 2019/05

**159/16 - “Unraveling the neural mechanisms of human memory decisions with magnetoencephalography”**

Investigadores/*Researchers*: Carlo Sestieri, Stefania Della Penna  
Instituição/*Institution*: Department of Neurosciences, Imaging and Clinical Sciences, University “G. D’Annunzio” of Chieti - Pescara (Italy)  
Duração prevista/*Estimated duration*: 2017/05 – 2018/10

**169/16 - “The potential effect of behavioral stimulation on social competence in dogs (via endogenous oxytocin release)”**

Investigadores/*Researchers*: Anna Kis, József Topál, Alin Ciobica, Radu Lefter, Katinka Tóth  
Instituição/*Institution*: Institute of Cognitive Neuroscience and Psychology, Research Centre for Natural Sciences, Hungarian Academy of Sciences, Budapest (Hungary); Department of Animal Physiology and Behaviour “Alexandru Ioan Cuza” University, Iasi (Romania)  
Duração prevista/*Estimated duration*: 2017/01 – 2019/12

**191/16 - “Mind-matter entanglement correlation”**

Investigador/*Researcher*: Hartmut Grote  
Instituição/*Institution*: Max-Planck Institute for Gravitational Physics (Albert Einstein Institute), Hannover (Germany)  
Duração prevista/*Estimated duration*: 2017/03 – 2019/12

**195/16 - “The sense of self: A neuroimaging study of interactions between intrinsic and extrinsic self networks”**

Investigadores/*Researchers*: Sjoerd Ebisch, Mauro Gianni Perrucci  
Instituição/*Institution*: Department of Neurosciences, Imaging and Clinical Sciences, University “G. D’Annunzio” of Chieti - Pescara (Italy)  
Duração prevista/*Estimated duration*: 2017/04 – 2019/04

**211/16 - “Waking conscious states and offline memory processing”**

Investigadores/Researchers: Erin Wamsley, Theodore Summer  
Instituição/Institution: Department of Psychology, Furman University, Greenville (USA)  
Duração prevista/Estimated duration: 2017/08 – 2020/07

**218/16 - “Virtual bodies, real empathy: Behavioural, bodily, and neural reactivity to the observation of pain and pleasure on self and others in immersive virtual reality”**

Investigadores/Researchers: Gaetano Tieri, Martina Fusaro, Valentina Nicolardi, Salvatore Maria Aglioti  
Instituição/Institution: Unitelma Sapienza, Rome (Italy); Social Cognitive Neuroscience Laboratory, University of Rome “La Sapienza” (Italy)  
Duração prevista/Estimated duration: 2017/05 – 2019/03

**226/16 - “Linking strawberries and politicians: The electrophysiology of the bimodal bilingual brain”**

Investigadores/Researchers: Cristina Baus, Albert Costa, Marc Gimeno  
Instituição/Institution: Center for Brain and Cognition – CBC, Universitat Pompeu Fabra, Barcelona (Spain)  
Duração prevista/Estimated duration: 2017/09 – 2019/08

**238/16 - “When prediction errs: Examining the brain dynamics of altered saliency in self-voice perception”**

Investigadores/Researchers: Ana Pinheiro, Sonja Kotz, Michael Schwartz  
Instituição/Institution: Faculdade de Psicologia da Universidade de Lisboa (Portugal); Faculty of Psychology and Neuroscience, University of Maastricht (The Netherlands)  
Duração prevista/Estimated duration: 2017/03 – 2018/08

**264/16 - “The influence of maternal bonding in neuroimmune synaptic sculpting”**

Investigadores/Researchers: Ana Luisa Cardoso, João Peça, Joana Guedes, Ana Silvestre Cardoso, Ana Viegas, Elisabete Ferreira  
Instituição/Institution: Center for Neuroscience and Cell Biology, University of Coimbra (Portugal)  
Duração prevista/Estimated duration: 2017/01 – 2019/12

**266/16 - “Early life stress and social hierarchies: The role of cortico-striatal circuits”**

Investigadores/Researchers: João Peça, Joana Guedes, Ana Luisa Cardoso, Mohammed Hussien, Lara Franco, Mário Carvalho  
Instituição/Institution: Center for Neuroscience and Cell Biology, University of Coimbra (Portugal)  
Duração prevista/Estimated duration: 2017/01 – 2019/12

**286/16 - “Getting the aging brain to train: A working memory and neurostimulation approach”**

Investigadores/Researchers: Adriana Sampaio, Ana Teixeira Santos, Sandra Carvalho, Jorge Leite, Ana Raquel Mesquita, Felipe Fregni  
Instituição/Institution: Psychology Research Center (CIPsi), School of Psychology, University of Minho, Braga (Portugal); Spaulding-Labuschange Neuromodulation Center, Spaulding Rehabilitation Hospital & Massachusetts General Hospital/Harvard Medical School, Charlestown (USA)  
Duração prevista/Estimated duration: 2017/06 – 2018/12

**292/16 - “Oxytocin: On the psychophysiology of trust and cooperation”**

Investigadores/Researchers: Diana Prata, James Rilling, Manuel Lopes, Duarte Ferreira, Daniel Martins, Pedro Levy  
Instituição/Institution: Instituto de Medicina Molecular, Lisboa (Portugal); Emory University, Atlanta (USA)  
Duração prevista/Estimated duration: 2017/10 – 2020/10

**296/16 - “Synaptic competition and cooperation in reward learning: The role of hippocampal and prefrontal inputs to the nucleus accumbens”**

Investigadores/Researchers: Stephen Martin, Rosalina Fonseca  
Instituição/Institution: Division of Neuroscience, School of Medicine, University of Dundee (UK); Centro de Estudos de Doenças Crónicas, NOVA Medical School, Faculdade de Ciências Médicas – Universidade NOVA de Lisboa (Portugal)  
Duração prevista/Estimated duration: 2017/09 – 2020/08

**298/16 - “Empowering feedback connections in temporo-occipital network to boost visual perception of emotions”**

Investigadores/Researchers: Sara Borgomaneri, Marco Zanon, Alessio Avenanti, Caterina Bertini  
Instituição/Institution: Center for studies and research in Cognitive Neuroscience, Department of Psychology, University of Bologna, Cesena (Italy)  
Duração prevista/Estimated duration: 2017/09 – 2019/09

**312/16 - “Mind-body interactions in writing (M-BW): Psychophysiological and linguistic synchronous correlates of expressive writing”**

Investigadores/Researchers: Rui Alves, Teresa Limpo, Sara Costa, Ana Sousa, Mónica Moreira, José Leal  
Instituição/Institution: Neurocognition and Language Research Group, Faculty of Psychology and Education Sciences of the University of Porto (Portugal); Faculty of Sciences of the University of Porto, (Portugal)  
Duração prevista/Estimated duration: 2017/04 – 2020/04

**315/16 - “Evaluating both precognition and presentiment among children in different age groups”**

Investigadores/Researchers: Tyler Stevens, James Lane  
Instituição/Institution: Rhine Research Center, Durham (USA)  
Duração prevista/Estimated duration: 2017/04 – 2018/06

**349/16 - “Consciousness beyond thought: Neural correlates of thoughtless awareness in long term meditators”**

Investigadores/Researchers: Baruch Cahn, Jonas Kaplan  
Instituição/Institution: Brain and Creativity Institute, University of Southern California, Los Angeles (USA)  
Duração prevista/Estimated duration: 2017/05 – 2019/05

**“Characterization of “Near-Death Experiences” through the comparison of experiencers and non-experiencers’ particularities: inter-individual differences in cognitive characteristics and susceptibility to false memories”**

Investigador/Researcher: Steven Laureys, Charlotte Martial, Vanessa Charland-Verville, Héliéna Cassol  
Instituição/Institution: Coma Science Group, University of Liège (Belgium)  
Duração prevista/Estimated duration: 2016/03 - 2018/12



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12º SIMPÓSIO DA FUNDAÇÃO IBEA

# AQUÉM E ALÉM DO CÉREBRO

Casa do Médico - Porto • 4 a 7 de abril de 2018





12º SIMPÓSIO DA FUNDAÇÃO Bial

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# AQUÉM E ALÉM DO CÉREBRO

Casa do Médico - Porto • 4 a 7 de abril de 2018







**A** CASA DO MÉDICO

- 1 AUDITORIUM - MAIN SESSIONS & WORKSHOP 3
- 2 SECRETARIAT
- 3 DRESSING ROOM & EARPHONES
- 4 COFFEE & POSTERS
- 5 BAR
- 6 ROOM BRAGA - WORKSHOP 1
- 7 ROOM MEDICOTECA - WORKSHOP 4

**B** ORDEM DOS MÉDICOS

- 8 ROOM CONFERÊNCIAS - WORKSHOP 2

FUNDAÇÃO

**Bial**

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