

# Brain and Mind – from Concrete to Abstract

**SYNAESTHESIA AND THE BRAIN | MAY 10TH 2022**

AN INTERDISCIPLINARY WORKSHOP BETWEEN MSH AND  
ST HILDA'S COLLEGE OXFORD UNIVERSITY

## **Dr Anita Avramides**

Anita Avramides is Senior Research Fellow in Philosophy at St Hilda's College in Oxford. She is the author of »Other Minds«, published by Routledge, »Meaning and Mind: An Examination of a Gricean Account of Meaning«, published by MIT Press, and co-editor of »Knowing Other Minds«, published by Oxford University Press. She has written many articles in the philosophy of mind.

## **Prof Dr Jutta Peterburs**

»Tasting colours and seeing sounds – synaesthesia as a window into multisensory integration in the brain«

Synaesthesia is a fascinating condition in which stimulation of one sensory modality automatically leads to a conscious and involuntary experience in another, e.g., seeing colours when hearing sounds. Synaesthetic experiences are highly consistent within an individual but vary considerably between synaesthetes. Neuroscience has taken great interest in synaesthesia because it allows unique insight into brain processes underlying sensory processing and multisensory integration. Nevertheless, the exact mechanisms and conditions that produce synaesthetic experience are as yet not fully understood.

In her talk, Prof Dr Jutta Peterburs will introduce different types of synaesthesia and highlight three neuroscientific theories: the Disinhibited-Feedback Model, the Cross-Activation Model, and the Stochastic Resonance Model. She will explore how research on synaesthesia can help advance our understanding of sensory processing in the brain.

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## **TIMETABLE**

**18.00**

Introduction by Dr Anita Avramides,  
St Hilda's College, Oxford, UK

**18.10**

»Tasting colours and seeing sounds –  
synaesthesia as a window into multisensory  
integration in the brain«  
Prof Dr Jutta Peterburs, MSH,  
Hamburg, Deutschland

**18.30**

»Synaesthesia - burden or benefit?«  
Prof Dr Janina Neufeld,  
Karolinska Institute, Solna, Schweden

**18.50**

Discussion

**19.00**

»'Putting Things Together'«  
Prof Dr Michael Martin,  
University of Oxford, UK

**19.20**

Discussion and Dinner

**20.00**

End

*Jutta Peterburs is full professor of Medical Psychology at MSH Medical School Hamburg. She studied Psychology and subsequently obtained her PhD in Psychology from Ruhr-University Bochum (Germany). As a postdoc and later principal investigator, she worked at University of Münster (Germany), Johns Hopkins School of Medicine in Baltimore (USA), and Heinrich-Heine-University Düsseldorf (Germany). Her research is mainly focused on adaptive behavior, learning, and non-motor functions of the cerebellum, but synaesthesia has been fascinating her since her graduate studies when she worked with Mike Dixon and Michelle Jarick at University of Waterloo, Canada.*

### **Prof Dr Janina Neufeld**

»Synaesthesia - burden or benefit?«

Synaesthesia is a non-pathological perceptual condition, associated with certain strengths, such as enhanced memory. Synaesthesia is also more common in people with Autism Spectrum Condition (ASC) and associated with increased autistic traits. Further, both people with synaesthesia and people with ASC share a remarkably similar profile of altered perception, including patterns of hyper- and hypo-sensitivity to sensory stimuli and an enhanced attention to details. Recently, synaesthesia has also been associated with other mental health conditions often co-occurring with ASC, including anxiety disorders. It is today unclear in what way synaesthesia might be linked to mental health conditions - and whether the same causes link synaesthesia to different mental health conditions. In her talk Prof Dr Janina Neufeld will present the so far available evidence on the link between synaesthesia and mental health, including her own studies in twins.

*Janina Neufeld studied Biology at the University of Bielefeld and conducted her PhD studies at the Medical School, Hannover, focusing on the brain mechanisms of synaesthesia. Subsequently, she completed two postdoctoral training periods, one at the University of Reading, UK, and one at Karolinska Institutet in Sweden, focusing on brain mechanisms of ASC. Since becoming Assistant*

*Professor at Karolinska Institutet in 2018, she developed her own line of research, leading a research team to study the link between synaesthesia and mental health conditions in twins.*

### **Prof Dr Michael Martin**

»‘Putting Things Together’«

‘What I certainly remember is noticing tastes when I was at school, around the age of four and a half. I have very strong memories of sitting in morning assemblies reciting the Lord’s Prayer – as we did back then – and experiencing a very strong, predominant taste and texture of fatty bacon.’

Synaesthesia is an amazing phenomenon involving the blending of different senses, and different dimensions of the world. For neuro-typical audiences, descriptions of the phenomenon offer a peek into a very different, and more poetic, world in which different senses are jumbled together in surprising ways. In his talk, Prof Dr Michael Martin will focus on just one form of synaesthesia which has come to be studied quite extensively: colour-graphemic synaesthesia, where subjects associate colours with alphabetic characters even when the letter in question is perceived to be in achromatic black. Finally, the talk leads us to the larger question of how synaesthesia and metaphor relate.

*Michael Martin is the Wilde Professor of Mental Philosophy at the University of Oxford. He is also Mills Adjunct Professor in the Department of Philosophy at the University of California, Berkeley, where he teaches every Fall semester. Mike’s work has principally been in the philosophy of mind, and more narrowly on the topic of sense perception. He has long been concerned with the question whether we can make sense of a naïve picture of how we are related to the ordinary world around us through sense perception. In addition, he’s been concerned with the nature of bodily awareness; self-knowledge; emotions; imagination and memory; the distinctive nature of visual depiction; the philosophy of David Hume; and the question why we should pay our taxes.*

