

# Bonn Melbourne Seminar in Decision Making and Computational Psychiatry

## Default mode network suppression in higher-order cognitive processes and depression

Christine Leonards, Department of Psychiatry, University of Melbourne, Australia

### Abstract

The default mode network (DMN) is arguably the most remarkable discovery of neuroimaging. Emerging insights suggest it is not a monolithic 'task-negative' network, as initially conceptualized, but is a heterogeneous complex network comprised of subsystems that show task-specific specialization, particularly during high cognitive demand. Further, evidence suggests that people with depression show weaker DMN suppression, particularly in the rostral anterior cingulate cortex, which has been linked to poorer treatment outcomes. However, the anatomical consistency and functional significance of this suppression effect during higher-order cognition, as well as the relevance of altered activity in depression and its link to treatment outcomes is not fully understood. In this presentation, I will present current and emerging neuroimaging findings from three distinct functional magnetic resonance imaging (fMRI) cognitive tasks. First, within the same sample of healthy young adults, we found distinct and consistent suppression in a subnetwork of regions during high demand conditions across the three tasks. Currently, we are investigating DMN suppression during these tasks in depressed populations and assessing whether individual differences may be associated with psychological mechanisms that may possibly provide some predictive insight into treatment outcomes. Findings of these analyses and their functional significance will be discussed.

**Thursday, 7<sup>th</sup> July 2022, 9am (CEST)**

<https://uni-bonn.zoom.us/j/99726851020?pwd=ZHRpaDQrZ2YzYnFmUE51eitkMjZiZz09>

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### Contact

Prof Ulrich Ettinger, Department of Psychology, University of Bonn, Germany; [ulrich.ettinger@uni-bonn.de](mailto:ulrich.ettinger@uni-bonn.de)

Prof Carsten Murawski, Department of Finance, The University of Melbourne, Australia;  
[carstenm@unimelb.edu.au](mailto:carstenm@unimelb.edu.au)

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