

Thursday, June 11, 2026 at 13:00

Speaker:

Professor Jan Peters

University of Cologne



Skewed mental models: a neurocomputational perspective on problem gambling

Location: Room 2.082 | 2nd floor | Am Propsthof 49 | 53121 Bonn

(Online link: <https://shorturl.at/YhbKI>)

Abstract:

Gambling disorder is a behavioral addiction that poses major concerns for public health. Although disordered gambling shares several clinical characteristics with substance use disorders, it is also linked to specific challenges. First, the structural design features of gambling products play a major role in problem gambling and serve as primary targets for regulation. Second, gambling is linked to a range of erroneous cognitions and beliefs, which are major targets for treatment. In the first part of my talk, I will argue that some gambling-related cognitions may arise from exposure to gambling products via a process of erroneous latent state inference modulated by dopaminergic signaling. I will then show how this framework provides a novel perspective on impairments and contextual modulation in model-based control and cognitive flexibility in problem gambling. Finally, I will demonstrate that problem gambling is linked not only to gambling-specific cognitive distortions, but also to superstitious and conspiratorial beliefs, as well as to a previously studied transdiagnostic compulsivity phenotype. Links between compulsivity and problem gambling severity were partially mediated by gambling-specific erroneous cognitions. Together, this framework outlines how erroneous cognitions may arise from gambling exposure, and highlights how a neurocomputational perspective can offer novel insights into problem gambling with implications for regulation, prevention, and treatment.

Jan Peters is Professor for Biological Psychology at the Department of Psychology at the University of Cologne. His research focuses on computational and cognitive neuroscience approaches to decision-making, reinforcement learning and problem gambling. Jan studied Cognitive Science at the University of Osnabrück and completed his PhD in Neuroscience in 2007 at the International Graduate School of Neuroscience at Ruhr University Bochum. He then worked as a Postdoc with Christian Büchel at UKE Hamburg from 2008-2012, where he began to focus on decision neuroscience. From 2013-2014, he joined the lab of Mark D'Esposito at UC Berkeley on a DFG fellowship, before returning to UKE Hamburg as independent Emmy Noether Research Group Leader from 2014-2016. Jan was appointed Professor for Biological Psychology at University of Cologne in 2016, and returned to UC Berkeley as visiting scholar in 2020 and 2024.

For more information on the event, please contact:
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Host:
Professor Dominik Bach,
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