

**Plenārsēde "Kritisks pārskats
par pašreizējām teorijām un
pētījumiem par apziņu"/
Plenary session "A critical
review of current theories and
research on consciousness"**

Report of Contributions

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A critical review of current theories and research on consciousness

Cees van Leeuwen's keynote on "A critical review of current theories and research on consciousness" addresses one of the most fundamental and rapidly evolving questions in contemporary science: how conscious experience arises from brain activity. In recent years, the field has seen a proliferation of competing theoretical frameworks—ranging from global workspace and integrated information theories to dynamical and predictive processing approaches—accompanied by advances in brain imaging and computational modeling that promise increasingly precise investigation of the neural correlates of consciousness. At the same time, growing interactions with physics-inspired methods and computational neuroscience are reshaping how researchers conceptualize brain dynamics and information processing. This talk will provide a critical synthesis of these developments, evaluating the strengths and limitations of current theories, highlighting key empirical findings, and outlining promising directions for future research, with particular attention to the role of neural dynamics, large-scale brain networks, and interdisciplinary approaches bridging neuroscience, physics, and computation.

Cees van Leeuwen is a cognitive scientist and neuroscientist and Professor Emeritus of Psychology at KU Leuven (Belgium), where he leads the Laboratory for Perceptual Dynamics. His research focuses on the dynamics of visual perception and consciousness, using approaches from psychophysics, EEG and eye-tracking experiments, and computational modeling to study how patterns of brain activity give rise to perceptual experience. Before joining KU Leuven, he was a group leader at the RIKEN Brain Science Institute in Japan (2000–2012) and has held academic positions in several countries. His work is known for integrating cognitive psychology, neuroscience, and complex systems theory to better understand perceptual organization and the neural basis of conscious visual experience.

<https://www.perceptualdynamics.be/team/cees-van-leeuwen/>

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