



Department of Psychology

The University of Hong Kong

香港大學心理學系

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2025

## Departmental Seminar

# Earth, Brain and Mental Health: Uncovering How the Environment Shapes the Mind



### Prof. Gunter Schumann

Distinguished Professor and Director  
Centre for Population Neuroscience and Stratified  
Medicine (PONS) at ISTBI, Fudan University,  
Shanghai and Charite University Medicine Berlin

4:00p.m. – 5:00p.m.

Room 1103, 11/F

The Jockey Club Tower

Centennial Campus

The University of Hong Kong

#### About the talk:

Rapid environmental change, including climate extremes, pollution, biodiversity loss, accelerating urbanisation and widening social inequalities, profoundly affects brain and mental health across the lifespan. The Horizon Europe-funded environMENTAL project investigates how large-scale environmental adversity shapes neurobiological mechanisms underlying depression, anxiety, stress and substance misuse. Building on our work in IMAGEN and related cohorts, where we identified quantitative neurobiological phenotypes, predictive models, stratification markers, 3T/7T imaging augmentation and a digital twin brain model, environMENTAL leverages federated data from over one million European citizens combined with deep behavioural and neuroimaging phenotyping. This enables modelling of how real-world exposures—such as living in cities—interact with genetic and psychosocial factors to influence brain networks, stress biology and cognitive-emotional function. Complementing this scientific programme, the Nature ‘Earth-Brain-Health Commission’ (EBHC) provides a systems framework linking environmental, biological and social determinants of mental health. It promotes interoperable infrastructures integrating satellite-based environmental data, climate models, digital health assessments and harmonised cohort information at a global level through data harmonisation, federated learning and explainable AI. Together, environMENTAL and EBHC aim to develop mechanistic, transdiagnostic models of environmental influence, identify molecular targets for prevention, and early interventions at the individual and population level.

#### About the speaker:

Prof. Gunter Schumann MD PhD, Distinguished Professor and Director, Centre for Population Neuroscience and Stratified Medicine (PONS) at ISTBI, Fudan University, Shanghai and Charite University Medicine Berlin advances research in population neuroscience and precision medicine in Europe and globally. Professor Schumann conceived and is coordinating the environMENTAL Horizon Europe project of 25 partnering institutions, a pioneering investigation of the effect of great global environmental challenges, urbanicity, climate change, pollution and social injustice on brain and mental health ([www.environmental-project.org](http://www.environmental-project.org)). He coordinates the IMAGEN project, a groundbreaking longitudinal imaging genetics study ([www.imagen-project.org](http://www.imagen-project.org)), initially funded by the European Commission, the STRATIFY study, funded by the European Research Council (ERC), and the Indian cVEDA study ([www.cveda-project.org](http://www.cveda-project.org)). He leads the Nature Commission on Environment, Brain and Mental Health. Professor Schumann is a recipient of prestigious awards, including an Advanced Grant of the ERC, a Humboldt Prize of the German Alexander von Humboldt Foundation as well as several awards of the PR China. He is a fellow of the Academia Europaea and the European Academy of Science.

#### Zoom Meeting (For participants who couldn't attend the Seminar in person)

<https://hku.zoom.us/j/6985555998?pwd=V05yTGJWNTIzazd2OFZ0Q3FReHVkdz09>

Meeting ID: 698 555 5998 | Password: Psyc

~ All are Welcome ~

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