



## Colloquium

# Understanding Human Pain and Altered States of Conscious Awareness Through Advanced Neuroimaging

**Irene Tracey**

Oxford University

Host: Tim Vogels and Peter Jonas

Pain is one of the oldest and most vital sensory and emotional experiences shared across the animal kingdom. It is vital to survival in its everyday acute pain form. However, chronic pain, defined as pain that persists beyond normal tissue healing time, is one of the largest medical health problems in the developed world affecting one in five adults. It not only brings untold suffering to the patient and their families but it is also enormously costly to society in financial terms. Current treatments are inadequate but in recent years the scientific discoveries are giving us new ways to think about chronic pain and its underpinning mechanisms, informed by neuroimaging that can help us 'see' pain and better explain why a patient is suffering. New mechanisms lead to new treatments and so the future looks bright. Further, we have been able to understand some of the long-standing mysteries of the subjective pain experience: placebos, nocebos, why fear and anxiety make pain worse, and why distraction makes pain less – as just a few examples that illustrate the mismatch and non-linearity between injury and perception. This talk will describe experiments that have given us mechanistic insight into this non-linearity. Finally, anaesthesia is one of the most dramatic examples of conscious manipulation aimed at allowing surgery without pain, awareness and movement. Our understanding of the systems-level human brain mechanisms that produce altered states of conscious awareness during anaesthesia has been relatively poor until recently. This talk will describe the various EEG and neuroimaging experiments that Irene's team have performed to better understand perceptual unawareness.

**Monday, February 17, 2025 11:30am - 12:30pm**

Raiffeisen Lecture Hall

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<https://ista.ac.at/en/campus/how-to-get-here/> The ISTA Shuttle bus is marked ISTA Shuttle (#142) and has the Institute Logo printed on the side.