
Talk on Tuesday, 16. December 2025***Start: 10:15 till 11.30 Uhr******in HS 424******The talk will be presented in English***

Sleep in Translation: Hyperarousal in rodent and human sleep

Dr. Alejandro Osorio-Forero

Netherlands Institute for Neuroscience



The modern neuroscience of sleep can be traced back to the pioneering work of Constantin von Economo in the 1920s, who first linked specific brain regions to insomnia and hypersomnia. Today, altered arousal systems are recognized as playing a crucial role not only in sleep disorders but also in anxiety and related conditions. This talk focuses on the noradrenergic Locus Coeruleus (LC) system and its role in regulating sleep and arousal. It begins with an overview of how LC activity changes across

vigilance states and how these dynamics relate to both central and autonomic electrophysiological signals throughout the sleep–wake cycle. LC-related markers of arousal are then compared between mice and humans, highlighting both shared and species-specific characteristics. Finally, recent translational findings are presented on aperiodic EEG activity in experiments combining optogenetic LC manipulations in mice with data from human participants with insomnia disorder. These observations emphasize the need for careful, species-specific interpretation of LC-related markers in clinical research and point toward new ways of understanding arousal dysregulation in insomnia and anxiety.