

Mattia Aime, Ph.D.
Postdoctoral Researcher,
University of Bern, Switzerland



2023 Finalist: Mattia Aime, Ph.D.

Mattia Aime received his undergraduate degree in Neurobiology from the University of Pavia, Italy. He then pursued his doctoral studies at the Interdisciplinary Institute of Neuroscience in Bordeaux, France, where, under the supervision of Dr. Frédéric Gambino, he identified a neuronal mechanism involved in the processing of emotionally related information in the mouse brain. He is currently completing his postdoctoral fellowship at the University of Bern, Switzerland, in the group headed by Prof. Adamantidis.

Essay: "Feel" Better: Sleep On It!

Emotions are a potent driving force in our lives, influencing our perceptions, behaviors, and overall well-being. As we navigate the complexities of daily existence, we encounter a myriad of events evoking strong positive and negative emotional responses. Yet, how do we effectively manage this influx of emotional information without becoming overwhelmed? Interestingly, the answer to this question might lie in a seemingly unrelated phenomenon: sleep. Sleep is a pivotal component of our daily routine, and among the multitude of functions attributed to this state, emotional processing stands out as a crucial aspect. However, the science underpinning the interplay between sleep and emotions remains only partially understood. Mattia Aime and colleagues identified a neuronal mechanism that triages positive from negative emotions during REM sleep by finely tuning the excitation/inhibition balance within the neuronal circuits of the prefrontal cortex. Beyond its implications for understanding brain excitability and plasticity, this discovery reveals the cellular dynamics underlying the brain electroencephalogram. Moreover, it opens new avenues for the therapeutic treatment of maladaptive processing of traumatic memories, such as Post-Traumatic Stress Disorders (PTSD) or anxiety disorders.