

Brain representations from a neurophysiological perspective

Ancient philosophers were already aware of the difficulty of discriminating between "objects" understood as material entities belonging to the physical, external world and "objects" understood as internal (cerebral, we would say today) representations of that world. Descartes was the first to propose a clear and rational distinction between physical objects (*res extensa*) and their representations (*res cogitans*). However, from a theoretical point of view this remains an open question. Empirical evidence from neurophysiology may provide some insights into this vexata quaestio. Despite the classical view that segregates perceptual and executive functions into different sets of brain areas, a significant percentage of neurons are both sensory and motor (sensorimotor). This raises a whole series of questions about the real nature of brain representations. In my presentation I will outline and discuss the most recent "state of the art" related to this topic and integrate this perspective with some recent results from our laboratory.