

Current understanding of brain's neural networks

Artificial machines are designed to be adequate for specific purposes of information processing. Their structure also depends on the methods by which they achieve the purposes. The same will be true for the brain. Though the structure and function of neural circuits of the brain remain elusive, extensive effort has been recently made to clarify these points. In this talk, I will overview recent experimental and computational results that significantly progressed our understanding of the network mechanisms of brain's computations. The topics will include novel findings on the design of local cortical networks, their functional implications, cross-frequency oscillation code for communication between dispersed brain regions, and large-scale simulations of cortical columns in RIKEN's next-generation supercomputer project.

All slides will be provided in English, and the talk will be given in Japanese or English depending on the language spectrum of the audience.