

Large-scale network models of cerebral cortex linking structure to dynamics

Prof. Dr. Sacha Jennifer van Albada

University of Cologne and Research Center Jülich

The cerebral cortex, on the outer surface of the mammalian brain, is structured into anatomically, dynamically, and functionally distinct areas and layers. So far, it is not well known how the complex connectivity structure of the cortex shapes its activity. In particular, studies to date have not combined accounts of the dynamics within areas and across multiple areas. I will present a supercomputational simulation study of the cerebral cortex of the macaque monkey which brings together small- and large-scale descriptions of the structure and dynamics of the network. This work provides a stepping stone for developing large-scale dynamical models of human cortex.