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Titolo	Brain Leitmotifs : The Structure and Activity Patterns of Neuronal Networks / / by Roger Traub, Andreas Draguhn
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ISBN	3-031-54537-0
Edizione	[1st ed. 2024.]
Descrizione fisica	1 online resource (276 pages)
Disciplina	745.05
Soggetti	Neurosciences Cognitive neuroscience Philosophy of mind Neuroscience Cognitive Neuroscience Philosophy of Mind
Lingua di pubblicazione	Inglese
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Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Preface -- Introduction: how should one think about nervous systems? -- Basic properties of biological neurons and synapses -- Memory and classification in the brain and artificial systems -- Working memory -- Central Pattern Generators -- Reinforcement learning and a possible application (birdsong) -- Complexities of cortex and the need for detailed models -- Gap junctions and very fast oscillations -- Synchronization through excitatory synapses: epilepsy but also conscious perception -- Oscillation synchronization, synaptic plasticity and cell assemblies -- Cortical delta rhythm, spike-wave epilepsy, and cognition -- Cortical up-states -- Sharp-wave/ripples – a special up-state? -- Some application to disease: epilepsy, gap junctions and plateau potentials -- Conclusions -- References -- Glossary -- Index.
Sommario/riassunto	This book tackles the question of why the brain is so difficult to fully understand. In neuroscience, data are acquired and analyzed with astonishing techniques and accumulate rapidly. Nevertheless, try to explain how a person can think or why there is such a condition as schizophrenia, and it appears that we really know little. To approach

these difficulties, the authors first present a number of case studies in which the operation of a neural circuit is worked out in some detail and, at the same time, the functional significance of the operation is also understood. These examples are complicated in their biologic specifics but are conceptually straightforward. The examples are hoped to provoke an appreciation for what neuroscience can accomplish. The authors then develop some thoughts on how these issues can be addressed----instead of considering cognition in general, taking instead a subset of cognition that does lend itself to formal description.