# Contents

## Part I Conceptual Questions of Memory Consolidation

### Cellular and Systems Consolidation of Declarative Memory
Lisa Genzel and John T. Wixted

### Mechanisms of Memory Consolidation and Transformation
Melanie J. Sekeres, Morris Moscovitch and Gordon Winocur

### The Medial Prefrontal Cortex is a Critical Hub in the Declarative Memory System
Guillén Fernández

### Consolidation of Episodic Memory: An Epiphenomenon of Semantic Learning
Sen Cheng

## Part II Memory Consolidation During Off-Line Periods and the Role of Sleep

### The Impact of Sleep Deprivation on Molecular Mechanisms of Memory Consolidation in Rodents
Judith C. Kreutzmann, Jennifer C. Tudor, Christopher C. Angelakos and Ted Abel

### Sleep and Odor Memory Consolidation in Non-human Animal Models
Donald A. Wilson, Kacper Kondrakiewicz and Dylan C. Barnes

### The Effect of Sleep on Multiple Memory Systems
Monika Schönauer and Steffen Gais

### A Role of Sleep in Forming Predictive Codes
Karsten Rauss and Jan Born
Emotional Memory Consolidation During Sleep .......................... 133
Tony J. Cunningham and Jessica D. Payne

Daily Life Experiences in Dreams and Sleep-Dependent
Memory Consolidation ..................................................... 161
Jean-Baptiste Eichenlaub, Sydney S. Cash and Mark Blagrove

Is Dreaming Related to Sleep-Dependent Memory Consolidation? 173
Michael Schredl

Part III Mechanisms of Memory Consolidation on a Systems
Physiology Level

Neuronal Oscillations and Reactivation Subserving Memory
Consolidation ............................................................. 185
Til Ole Bergmann and Bernhard P. Staresina

The Role of Sleep Spindles in Sleep-Dependent
Memory Consolidation .................................................. 209
Elizabeth A. McDevitt, Giri P. Krishnan, Maxim Bazhenov
and Sara C. Mednick

Hippocampal Sharp Wave/Ripple Complexes—Physiology
and Mechanisms .......................................................... 227
Nikolaus Maier and Richard Kempter

Replay in Humans—First Evidence and Open Questions .......... 251
Hui Zhang, Lorena Deuker and Nikolai Axmacher

Cortico-Hippocampal Circuits for Memory Consolidation:
The Role of the Prefrontal Cortex ................................. 265
Lisa Genzel and Francesco P. Battaglia

Part IV Modulation of Memory Consolidation

Stress and Memory Consolidation ...................................... 285
Shira Meir Drexler and Oliver T. Wolf

Electric Stimulation to Improve Memory Consolidation
During Sleep ............................................................... 301
Diana Campos-Beltrán and Lisa Marshall

Memory Manipulation During Sleep: Fundamental Advances
and Possibilities for Application ...................................... 313
Lucia M. Talamini

Scents and Reminiscence: Olfactory Influences on Memory
Consolidation in the Sleeping Human Brain .................... 335
Laura K. Shanahan and Jay A. Gottfried
Reinforcing Language Learning During Sleep ............................. 347
Thomas Schreiner, Mick Lehmann and Björn Rasch

Part V Clinical Translation

Reconsolidation and Trauma Memory ................................. 369
Henrik Kessler, Simon E. Blackwell and Aram Kehyayan

Sleep-Related Interventions to Improve Psychotherapy .............. 381
Christoph Nissen, Marion Kuhn, Elisabeth Hertenstein
and Nina Landmann

Accelerated Long-Term Forgetting in Epilepsy—and Beyond .... 401
John Baker and Adam Zeman
Cognitive Neuroscience of Memory Consolidation
Axmacher, N.; Rasch, B. (Eds.)
2017, XV, 417 p. 52 illus., 43 illus. in color., Hardcover
ISBN: 978-3-319-45064-3