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*“Kendall Lee and colleagues have curated an approachable and comprehensive overview of deep brain stimulation (DBS), with topics ranging from the biophysics of neural stimulation to applications of DBS for both established and emerging clinical indications, including memory dysfunction. This text provides an invaluable companion for clinicians, neuroscientists, engineers, and others with an interest in the current practice and frontiers of DBS.”*

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Massachusetts General Hospital, Harvard Medical School, USA

*“This book covers diverse topics of relevance for current practitioners as well as newcomers to the field, including theoretical and mechanistic aspects, results of important clinical trials, and potential new brain targets and new indications.”*

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University of California, San Francisco, USA

*“This book is an important reference to the field of stereotactic and functional neurosurgery and covers the most important aspects of clinical practice and research in deep brain stimulation. It will be of great interest to those who are new to this field as well as experienced clinicians and investigators.”*

**Dr. André Machado**  
Cleveland Clinic, USA

Deep brain stimulation (DBS) is a widely used therapy for movement disorders such as Parkinson's disease, essential tremor, and dystonia. Its therapeutic success has led to the application of DBS for an increasing spectrum of conditions. However, the fundamental relationships between neural activation, neurochemical transmission, and clinical outcomes during DBS are not well understood.

Drawing on the clinical and research expertise of the Mayo Clinic Neural Engineering Laboratories, this book addresses the history of therapeutic electrical stimulation of the brain, its current application and outcomes, and theories about its underlying mechanisms. It reviews research on measures of local stimulation-evoked neurochemical release, imaging research on stimulation-induced neural circuitry activation, and the state of the art on closed-loop feedback devices for stimulation delivery.



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