

## **SLOW CORTICAL POTENTIALS REFLECT THE REGULATION OF CORTICAL EXCITABILITY**

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### **SUMMARY**

A model is described which postulates ways in which regulatory circuits within the brain might generate electrical activity underlying spontaneous EEG fluctuations and event-related slow potentials (ERP) of the brain. We suggest that slow potentials represent a measure of the excitability of cortical neuronal networks and that this excitability must be regulated within distinct limits. The regulation has reflexive characteristics but must contain anticipatory elements as well.

Five main postulates are basic to the model:

- (1) The electrical sources of event-related slow potentials and other large amplitude EEG activity reside in the dendritic trees of cortical pyramidal neurons.
- (2) Surface negative potentials represent a measure for the excitability in the underlying neural tissue, surface positivity signifies widespread absence of facilitation.
- (3) Slow potentials indicate availability and spatial allocation of resources for information processing performed by the underlying neural tissue. Direction of attention and memory search will generate negative potentials in those neural assemblies which process the respective concepts. Memory storage and updating of information require that large proportions of the neural network be shut off and therefore they are accompanied by widespread positive waves of high amplitude. The electrical source of these waves can be traced to neural populations not involved in the storage process.
- (4) Conscious processes arise above a certain amount of cortical excitability; they appear when threshold levels of negative DC shifts are exceeded.

# Slow Brain Potentials And Behavior

**Léo Pomar**



## **Slow Brain Potentials And Behavior:**

**Slow Brain Potentials and Behavior** Brigitte Rockstroh, 1982 *Brain-Computer Interfaces* Bernhard Graimann, Brendan Z. Allison, Gert Pfurtscheller, 2010-10-29 A brain computer interface BCI establishes a direct output channel between the human brain and external devices BCIs infer user intent via direct measures of brain activity and thus enable communication and control without movement This book authored by experts in the field provides an accessible introduction to the neurophysiological and signal processing background required for BCI presents state of the art non invasive and invasive approaches gives an overview of current hardware and software solutions and reviews the most interesting as well as new emerging BCI applications The book is intended not only for students and young researchers but also for newcomers and other readers from diverse backgrounds keen to learn about this vital scientific endeavour

Health Psychophysiology S. Suter, 2014-06-03 Most military researchers who have attempted to measure organizational commitment have done so on an ad hoc basis preferring to invent new items and scales rather than incorporate well established measures The purpose of this special issue is to reverse this trend by bringing military organizational commitment research into the scientific mainstream and to do so in ways that will prove useful to military services while advancing organizational commitment theory and knowledge This special issue grew out of a symposium conducted at the 1998 American Psychological Association Convention that arose when many in the field recognized the practical importance of measuring organizational commitment while maintaining a healthy concern for ensuring that this measurement was well grounded in organizational commitment theory Taken together the articles in this issue demonstrate the concepts of affective and continuance commitment and their underlying measures by using them in different military samples and under a variety of operational conditions *International Perspectives on Self-Regulation and Health* John G. Carlson, A. Ronald

Seifert, 2013-11-21 An attractive feature of self regulation therapies is that instead of doing something to the patients they teach them to do something for themselves Furthermore the fact that the patient is able to do something to cope with his or her health problem can produce a significant reduction in the stress that may have contributed to that problem and in the additional stress that it produces While the idea that the mind can play a role in the health of the body and some therapeutic techniques based on this idea are not new remarkable scientific advances have been made recently in the area of self regulation and health There has been an exciting and rapidly accelerating increase in our basic science knowledge of homeostasis or in other words how the body regulates itself in order to maintain health Technical and conceptual advances are increasing our knowledge of the details of such regulation at all levels cells tissues organs organ systems and the body as a whole We are learning how the competing demands of different elements at each of these levels are adjusted by the brain which with its neural and humoral mechanisms is the supreme organ of integration of the body Niedermeyer's Electroencephalography Donald L. Schomer, Fernando H. Lopes da Silva, 2018 Niedermeyer's Electroencephalography Basic

Principles Clinical Applications and Related Fields Seventh Edition keeps the clinical neurophysiologist on the forefront of medical advancements This authoritative text covers basic neurophysiology neuroanatomy and neuroimaging to provide a better understanding of clinical neurophysiological findings This edition further delves into current state of the art recording EEG activity both in the normal clinical environment and unique situations such as the intensive care unit operating rooms and epilepsy monitoring suites As computer technology evolves so does the integration of analytical methods that significantly affect the reader's interpretations of waveforms and trends that are occurring on long term monitoring sessions Compiled and edited by Donald L Schomer and Fernando H Lopes da Silva along with a global team of experts they collectively bring insight to crucial sections including basic principles of EEG and MEG normal EEG EEG in a clinical setting clinical EEG in seizures and epilepsy complementary and special techniques event related EEG phenomena and shed light on the future of EEG and clinical neurophysiology Akin to an encyclopedia of everything EEG this comprehensive work is perfect for neurophysiology fellows as well as neurology neurosurgery and general medical residents and for the interns and medical students and is a one stop shop for anyone training in EEG or preparing for neurophysiology or epilepsy board exams

**Indexes to the Epilepsy Accessions of the Epilepsy Information System** J. Kiffin Penry, 1978 **Current Catalog** National Library of Medicine (U.S.), 1982 First multi year cumulation covers six years 1965-70 **Self-Regulation of the Brain and Behavior** T. Elbert, B. Rockstroh, W. Lutzenberger, N. Birbaumer, 2012-12-06 With contributions by numerous experts *Slow Cortical Potentials and Behaviour* Brigitte Rockstroh, 1989 Time, Action and Cognition Françoise Macar, V. Pouthas, William J. Friedman, 2013-04-17 This volume is the outcome of the NATO Advanced Research Workshop on Time Action and Cognition which was held in Saint Malo France in October 1991 The theme time in action and cognition of time was sparked by growing awareness in informal meetings between mostly French speaking time psychologists of the need to bring together time specialists in the areas of development motor behavior attention memory and representations The workshop was designed to be a forum where different theoretical points of view and a variety of empirical approaches could be presented and discussed Time psychologists tended to draw conclusions restricted to their specific fields of interest From our own experience we felt that addressing a common issue possible relationships between time in action and representations of time could lead to a more comprehensive approach We are indebted to NATO for allowing us to bring this idea to fruition We take this opportunity as well to express our thanks to Cognisciences Cognisud section an active interdisciplinary research organization for its financial backing and the CNRS for its scientific support

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