Epilepsy: The Intersection of Neurosciences, Biology, Mathematics, Engineering, and Physics

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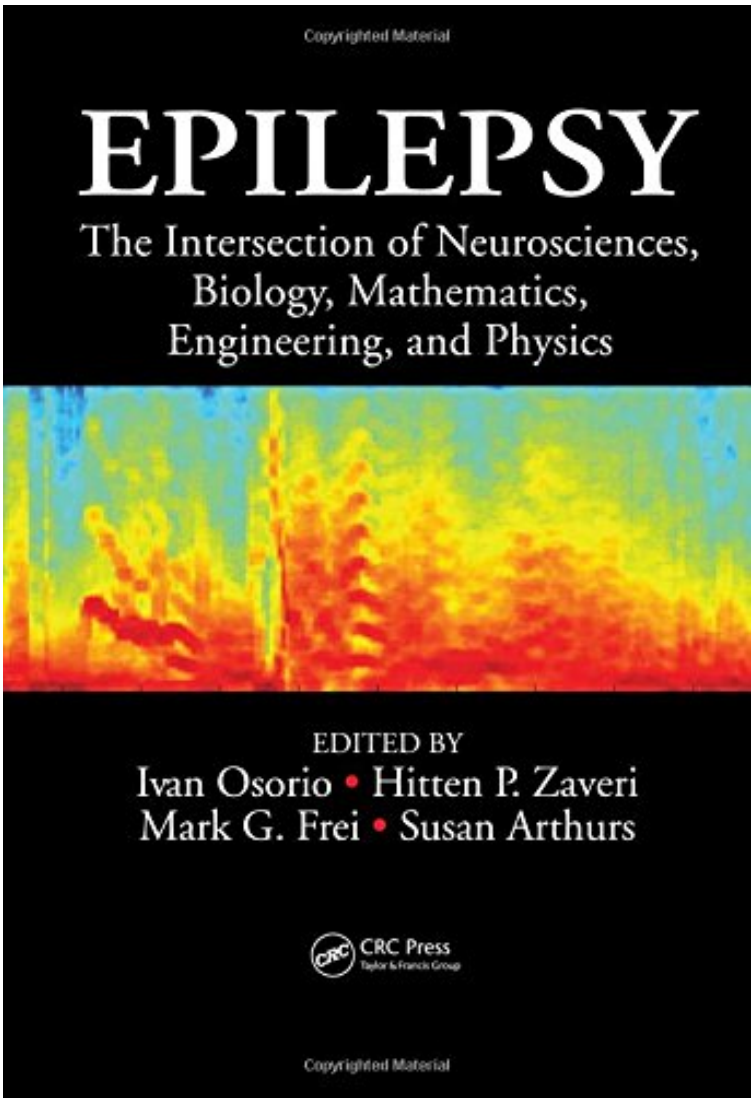

#2217888 in Books CRC Press 2011-05-02Original language:EnglishPDF # 1 10.00 x 1.25 x 7.01l, 2.72 #File Name: 1439838852578 pages | File size: 44.Mb

From Brand: CRC Press : Epilepsy: The Intersection of Neurosciences, Biology, Mathematics, Engineering, and Physics before purchasing it in order to gage whether or not it would be worth my time, and all praised Epilepsy: The Intersection of Neurosciences, Biology, Mathematics, Engineering, and Physics:

0 of 0 people found the following review helpful. Well written, extensive overview of SoABy BernardThe book gives a very good introduction to the topic, starting from the basics of EEG (sEEG and iEEG) epilepsy and signal processing, gradually working towards the topics of seizure detection and prediction.It is very well written by relevant

experts and well edited.Very good book for everyone interested in a state-of-art overview of the topic.

Epilepsy, one of the most prevalent neurological disorders, affects approximately 1% (greater than 60 million) of the world's population. In an estimated 20 million of these patients, seizures are not controlled even by multiple anti-seizure drugs, and are extremely difficult to predict. Epilepsy: The Intersection of Neurosciences, Biology, Mathematics, Engineering, and Physics seamlessly brings together the neurosciences, mathematics, computational sciences, engineering, physics, and clinical epileptology to present to readers a highly didactic, integrated, clear and practically useful knowledge base and research directions. Laying out the foundations of signal analysis, data conditioning, linear and non-linear analysis, introduction to dynamical systems and fundamental anatomical and neurophysiological concepts, this book: Introduces non-physicians to language and concepts necessary to establish a meaningful dialog with epileptologists Introduces physicians to dynamical theory and signal processing without which interdisciplinary collaborations would not be productive Mines knowledge from fields devoted to the investigation of aperiodic paroxysmal relaxation phenomena, such as earthquakes, which bear dynamical similarities with epilepsy, so as to lay the proper scientific foundations for epileptology and foster much needed therapeutic advances efficiently Reviews spatiotemporal behavior of seizures, mechanisms of epileptogenesis and ictogenesis as well as of seizure control and ancillary technology Calls attention to nocturnal frontal lobe epilepsy as a potentially fruitful paradigm for advancing seizure prediction. Of all neurological disorders, epilepsy demands of investigators the broadest and deepest knowledge of dynamical, control, and system theories, knowledge that cannot be amassed without possessing a certain level of sophistication in relevant areas of neurosciences, physics, mathematics, and engineering. Narrowing the inescapable cultural chasm that commonly fragments multidisciplinary efforts, this book captures and enriches the burgeoning interdisciplinary synergism in the nascent field of dynamical epileptology.

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