1. Record Nr. UNINA9910299856503321

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Titolo	Stimulation and Recording Electrodes for Neural Prostheses / / by Naser Pour Aryan, Hans Kaim, Albrecht Rothermel
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2015
ISBN	3-319-10052-1
Edizione	[1st ed. 2015.]
Descrizione fisica	1 online resource (89 p.)
Collana	SpringerBriefs in Electrical and Computer Engineering, , 2191-8112
Disciplina	616.804645
Soggetti	Electronic circuits Biomedical engineering Circuits and Systems Biomedical Engineering and Bioengineering
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references at the end of each chapters.
Nota di contenuto	Stimulation and recording electrodes: General concepts -- Irreversible and reversible redox reactions: Water window -- Charge balance and safe operation conditions -- Primary current distribution and electrode geometry -- Experiments hardware and methods -- Electrode materials: State-of-the-art and experiments -- The effect of the counter electrode on stimulation electrode lifetime -- Electrode modeling for titanium nitride, iridium and iridium oxide microelectrodes -- Summary.
Sommario/riassunto	This book provides readers with basic principles of the electrochemistry of the electrodes used in modern, implantable neural prostheses. The authors discuss the boundaries and conditions in which the electrodes continue to function properly for long time spans, which are required when designing neural stimulator devices for long-term in vivo applications. Two kinds of electrode materials, titanium nitride and iridium are discussed extensively, both qualitatively and quantitatively. The influence of the counter electrode on the safety margins and electrode lifetime in a two electrode system is explained. Electrode modeling is handled in a final chapter.