1. Record Nr. UNINA9910135029103321

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Titolo	Tunnel field-effect transistors (TFET) : modelling and simulations / / Jagadesh Kumar Mamidala, Rajat Vishnoi, Pratyush Pandey
Pubbl/distr/stampa	Hoboken : , : Wiley, , 2017
ISBN	1-119-24630-X 1-119-24628-8 1-119-24631-8
Edizione	[1]
Descrizione fisica	1 online resource (208 p.)
Classificazione	TEC008090
Disciplina	621.3815/284
Soggetti	Tunnel field-effect transistors Integrated circuits - Design and construction Nanostructured materials Low voltage integrated circuits
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 and index.
Nota di contenuto	Title Page ; Copyright; Contents; Preface; Chapter 1 Quantum mechanics ; 1.1 Introduction to quantum mechanics; 1.1.1 The double slit experiment; 1.1.2 Basic concepts of quantum mechanics; 1.1.3 Schrodingers equation; 1.2 Basic quantum physics problems; 1.2.1 Free particle; 1.2.2 Particle in a one-dimensional box; Reference; Chapter 2 Basics of tunnelling ; 2.1 Understanding tunnelling; 2.1.1 Qualitative description; 2.1.2 Rectangular barrier; 2.2 WKB approximation; 2.3 Landauers tunnelling formula; 2.4 Advanced tunnelling models; 2.4.1 Non-local tunnelling models 2.4.2 Local tunnelling modelsReferences; Chapter 3 The tunnel FET ; 3.1 Device structure; 3.1.1 The need for tunnel FETs; 3.1.2 Basic TFET structure; 3.2 Qualitative behaviour; 3.2.1 Band diagram; 3.2.2 Device characteristics; 3.2.3 Performance dependence on device parameters; 3.3 Types of TFETs; 3.3.1 Planar TFETs; 3.3.2 Three-dimensional TFETs; 3.3.3 Carbon nanotube and graphene TFETs; 3.3.4 Point versus line tunnelling in TFETs; 3.4 Other steep subthreshold transistors; References; Chapter 4 Drain current modelling of tunnel FET: the task and its challenges ; 4.1 Introduction

Sommario/riassunto

"This one-stop study aid to TFETs is aimed at those who are beginning their study on TFETs and also as a guide for those who wish to design circuits using TFETs. The book covers the physics behind the functioning of the TFETs and their modelling for the purpose of circuit design and circuit simulation. It begins with a brief discussion on the basic principles of quantum mechanics and then builds up to the physics behind the quantum mechanical phenomena of band-to-band tunnelling. This is followed by studying the basic functioning of the TFETs and their different structural configurations. After explaining the functioning of the TFETs, the book describes different approaches used by researchers for developing the drain current models for TFETs. Finally, to help the new researchers in the area of TFETs, the book describes the process of carrying out numerical simulations of TFETs using TCAD. Numerical simulations are helpful tools for studying the behaviour of any semiconductor device without getting into the complex process of fabrication and characterization"--