Record Nr. UNINA9910826015503321 Autore Iu Herbert Ho-Ching **Titolo** Development of memristor based circuits / / Herbert Ho-Ching Iu, Andrew L. Fitch Pubbl/distr/stampa New Jersey;; London,: World Scientific, c2013 **ISBN** 1-299-28119-2 981-4383-39-2 Edizione [1st ed.] Descrizione fisica 1 online resource (133 p.) Collana World Scientific series on nonlinear science, Series A, , 1793-1010 ; ; v. 82 Altri autori (Persone) FitchAndrew L Disciplina 621.3815 Soggetti Memristors Electronic 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 Contents; Preface; 1 Introduction; 1.1 Introduction; 1.2 HP Memristor; 1.3 Memristor Emulator; 1.3.1 Valsa's memristor emulator; 1.3.2 Pershin and Di Ventra's memristor emulator; 1.3.3 Muthuswamy's memristor modeling circuit; 1.3.4 Kim's memristor emulating circuit; 1.4 Structure of the Book; References; 2 Controlling Chaos in a Memristor Based Circuit: 2.1 Introduction: 2.2 Memristor Based Chaotic Circuit; 2.3 Notch Filter Feedback Controller; 2.3.1 Twin-T notch filter; 2.3.2 Interface circuit; 2.4 Simulation Results; 2.5 Experimental Setup; 2.6 Conclusion: References 3 Hyperchaos in a Memristor Based Modified Canonical Chua's Circuit3. 1 Introduction; 3.2 Dynamical Equations of MHC; 3.3 Simulation Results; 3.4 Experimental Setup; 3.5 Conclusion; References; 4 Realization of an Analog Model of a Memristor Based on a Light Dependent Resistor; 4.1 Introduction; 4.2 Circuit Objectives; 4.3 Simulation Setup; 4.4 Experimental Setup; 4.5 Conclusion; References: 5 Design of a Memcapacitor Emulator Based on a Memristor; 5.1 Introduction; 5.2 The Memcapacitor and Its Relation to the Memristor; 5.3 Simulation Setup; 5.4 Experimental Setup; 5.5 Conclusion; References

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Sommario/riassunto

In 1971, Leon O. Chua presented the formulation of a memristor, which was postulated as the fourth circuit element in electrical circuit theory one that could join the existing core group of elements: capacitor, resistor and inductor. For over thirty years, the memristor had held no significance in circuit theory. Then in 2008, a group of scientists from Hewlett-Packard Labs (HP) developed a working memristor. Although the solid state implementation of the memristor inspired appreciable interest in developing applications, memristors are not yet available on the market to date. HP labs do no