



# Digital communications using chaos and nonlinear dynamics

/

Larson, Lawrence E.

Tsimring, L. Sh

Liu, Jia-Ming (1953-)

Springer, 2006

**Electronic books**

Monografía

This book introduces readers to a new and exciting cross-disciplinary field of digital communications with chaos. This field was born around 15 years ago, when it was first demonstrated that nonlinear systems which produce complex non-periodic noise-like chaotic signals, can be synchronized and modulated to carry useful information. Thus, chaotic signals can be used instead of pseudo-random digital sequences for spread-spectrum and private communication applications. This deceptively simple idea spun hundreds of research papers, and many novel communication schemes based on chaotic signals have been proposed. However, only very recently researchers have begun to make a transition from academic studies toward practical implementation issues, and many "promising" schemes had to be discarded or re-formulated. This book describes the state of the art (both theoretical and experimental) of this novel field. The book is written by leading experts in the fields of Nonlinear Dynamics and Electrical Engineering who participated in US Army sponsored Multi-University Research Initiative on Digital Communication using Nonlinear Dynamics. It will be useful for active researchers and advanced graduate students interested in this exciting new field

<https://rebiunoda.pro.baratznet.cloud:38443/OpacDiscovery/public/catalog/detail/b2FpOmNlbGVicmF0aW9uOmVzLmJhcmF0ei5yZW4vMjUzNDI0NTA>

---

**Título:** Digital communications using chaos and nonlinear dynamics Lawrence E. Larson, Jia-Ming Liu, Lev S. Tsimring, editors

**Editorial:** New York London Springer 2006

**Descripción física:** 1 online resource (xiv, 382 pages) illustrations

**Mención de serie:** Institute for nonlinear science

**Documento fuente:** Springer e-books

**Bibliografía:** Includes bibliographical references and index

**Contenido:** An Overview of Digital Communications Techniques Using Chaos and Nonlinear Dynamics -- Digital Communication Using Self-Synchronizing Chaotic Pulse Position Modulation -- Spread Spectrum Communication with Chaotic Frequency Modulation -- Ultra-Wideband Communications Using Pseudo-Chaotic Time Hopping -- Optimum Spreading Sequences for Asynchronous CDMA System Based on Nonlinear Dynamical and Ergodic Theories -- Nonlinear Phenomena in Turbo Decoding Algorithms -- Security of Chaos-Based Communication and Encryption -- Random Finite Approximations of Chaotic Maps -- Numerical Methods for the Analysis of Dynamics and Synchronization of Stochastic Nonlinear Systems -- Dynamics and Synchronization of Semiconductor Lasers for Chaotic Optical Communications -- Performance of Synchronized Chaotic Optical Communication Systems

**Restricciones de acceso:** Use copy. Restrictions unspecified star. MiAaHDL

**Detalles del sistema:** Master and use copy. Digital master created according to Benchmark for Faithful Digital Reproductions of Monographs and Serials, Version 1. Digital Library Federation, December 2002. <http://purl.oclc.org/DLF/benchrepro0212> MiAaHDL

**Lengua:** English

**Nota de acción:** digitized 2010 HathiTrust Digital Library committed to preserve pda MiAaHDL

**Copyright/Depósito Legal:** 86077392 154665150 213888582 228150209 228150210 228402159 320971919  
401444841 607378735 608458648 613449693 756421713 880096055 994814023 1005765506 1035666098  
1044088813 1044191260 1050964534 1056366384 1056386045 1058289204 1066681052 1078844339  
1097084261 1097298219 1102299611 1110739462 1110834571 1112567256 1125407853

**ISBN:** 9780387297880 038729788X 0387297871 hbk.) 9780387297873 hbk.) 6610701342 9786610701346  
128070134X 9781280701344

**Materia:** Digital communications Chaotic behavior in systems Nonlinear systems TECHNOLOGY & ENGINEERING- Telecommunications Nonlinear systems Digital communications Chaotic behavior in systems Physique Chaotic behavior in systems Digital communications Nonlinear systems

**Autores:** Larson, Lawrence E. TSimring, L. Sh Liu, Jia-Ming ( 1953-)

**Enlace a formato físico adicional:** Print version Digital communications using chaos and nonlinear dynamics. New York ; London : Springer, 2006 0387297871 9780387297873 (DLC) 2005934890 (OCoLC)64958035

**Punto acceso adicional serie-Título:** Institute for nonlinear science (Springer-Verlag)

---

## Baratz Innovación Documental

- Gran Vía, 59 28013 Madrid
- (+34) 91 456 03 60
- [informa@baratz.es](mailto:informa@baratz.es)