

Transmission of Binary Information with a Chaos Coded Communication System using QDPSK-Modulation*

Andreas Magauer and Soumitro Banerjee^a

Member IEEE, Abteilung für Elektronik und Informatik, Höhere Technische Bundeslehranstalt Salzburg, A-5020 Salzburg

^a Member IEEE, Department of Electrical Engineering, Indian Institute of Technology Kharagpur – 721302, India

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Synchronisation of chaotic oscillators offers a way of practical application of the theory of Chaos in obtaining secure communication. In this work we introduce a nonautonomous chaotic system with sinusoidal external force for communication of binary signals. The information is applied to the phase position of the sinusoidal forcing signal of the chaotic oscillator using a quadrature difference phase shift keying (QDPSK) modulation. An inverse synchronisation system approach with direct modulation is applied. We describe the system in detail and discuss the requirements of a secure communication system. Issues related to bit error rate, transfer rate, signal to noise ratio, channel bandwidth, bandwidth efficiency and channel capacity are discussed, and the properties of the realized communication system are placed in relation to the requirements of a secure communication system.

Key words: Chaos; Synchronisation; Encryption; Communication; PSK-Modulation.

Reprint requests to Dr. A. Magauer; E-mail: magauer@ieee.org