

Chaos, Noise and Random Number Generation

Rajarshi Roy
University of Maryland, College Park
roy@umd.edu

Abstract: Random number generation is essential for encryption of information and Monte Carlo simulations. We examine sources and signatures of randomness and determinism in optoelectronic nonlinear dynamical systems. Measures of entropy production and dependence on observational precision and time resolution are described. Applications of optoelectronic systems to physical random number generation and assessment are explored and state-of-the-art techniques will be discussed.