

Study of the dynamics of Lithium Niobate Mach Zehnder Modulator

Abstract

Secure data transmission in fiber optic communication is achieved by encrypting the data by chaotic optical carriers. Mach-Zehnder modulators (MZM) are key components for generating the chaotic optical signals to be used as carrier signals. The chaotic fluctuations of the intensity of a laser diode are generated using the electro-optic MZM modulator operating in a highly nonlinear regime. The modulator is driven in closed loop by its own output at an earlier time. The system displays reproducible nonlinearity that is used to generate chaotic optical carrier signal. In this project, the dynamics of a Lithium niobate Mach-Zehnder modulator under various biasing conditions will be studied. Both open and closed loop configurations will be employed resulting in the demonstration of a rich variety of phenomena.

References:

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Eligibility: Only students of Electronics &Communication Engineering branches can submit their application at the following email addresses:

adhiya@ipr.res.in [Guide e-mail address]

harsha@ipr.res.in [Co-guide e-mail address]

and

project_ee@ipr.res.in [Project Coordinator's e-mail address]

Phone Number: 079-23962147, 9824751279 [Guide phone number]

079-23969533, 9426921308 [Co-guide phone number]