

Seminar

Kramers-Kronig Receiver

This topic is offered as part of the [Seminar on Digital Communications](#) course.

A promising receiver for a short-reach fiber-optic transmission system with a direct detector is the so-called "Kramers-Kronig" (KK) receiver. A direct detector is a single photo diode, which discards phase information and outputs only the magnitude of the impinging field. Under certain assumptions, the KK receiver can reconstruct the phase of the transmitted signal by leveraging the relation between phase and magnitude by means of the Hilbert transform.

Mecozzi, Antonio, Cristian Antonelli, and Mark Shtaif. "Kramers–Kronig coherent receiver." *Optica* 3.11 (2016): 1220-1227.

Mecozzi, Antonio, Cristian Antonelli, and Mark Shtaif. "Kramers–kronig receivers." *Advances in Optics and Photonics* 11.3 (2019): 480-517.

Prerequisites

Linear system theory

Advisors

Daniel Plabst