The relative motion between the transmitter and the receiver modifies the nonstationarity properties of the transmitted signal. In particular, the almost-cyclostationarity property exhibited by almost all modulated signals adopted in communications, radar, sonar, and telemetry can be transformed into more general kinds of nonstationarity. A proper statistical characterization of the received signal allows for the design of signal processing algorithms for detection, estimation, and classification that significantly outperform algorithms based on classical descriptions of signals. *Generalizations of Cyclostationary Signal Processing* addresses these issues and includes the following key features:

- Presents the underlying theoretical framework, accompanied by details of their practical application, for the mathematical models of generalized almost-cyclostationary processes and spectrally correlated processes; two classes of signals finding growing importance in areas such as mobile communications, radar and sonar.

- Explains second- and higher-order characterization of nonstationary stochastic processes in time and frequency domains.

- Discusses continuous- and discrete-time estimators of statistical functions of generalized almost-cyclostationary processes and spectrally correlated processes.

- Provides analysis of mean-square consistency and asymptotic Normality of statistical function estimators.

- Offers extensive analysis of Doppler channels owing to the relative motion between transmitter and receiver and/or surrounding scatterers.
• Performs signal analysis using both the classical stochastic-process approach and the functional approach, where statistical functions are built starting from a single function of time.

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