1. Record Nr. UNINA9911019452603321

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Titolo	Non-Gaussian statistical communication theory / / David Middleton
Pubbl/distr/stampa	Hoboken, N.J., : Wiley-IEEE Press, 2012
ISBN	1-118-16195-5 1-283-55015-6 9786613862600 1-118-16193-9
Edizione	[1st ed.]
Descrizione fisica	1 online resource (661 p.)
Collana	IEEE series on digital & mobile communication ; ; 22
Classificazione	SCI067000
Disciplina	003/.54
Soggetti	Statistical communication theory Information theory - Statistical methods Gaussian processes
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Includes index.
Nota di contenuto	Reception as a Statistical Decision Problem -- Space-Time Covariances and Wave Number Frequency Spectra: I. Noise and Signals with Continuous and Discrete Sampling -- Optimum Detection, SpaceTime Matched Filters, and Beam Forming in Gaussian Noise Fields -- Multiple Alternative Detection -- Bayes Extraction Systems: Signal Estimation and Analysis, () = 1 -- Joint Detection and Estimation, () = 1: I. Foundations -- Joint Detection and Estimation under Uncertainty, () < 1. II. Multiple Hypotheses and Sequential Observations -- The Canonical Channel I: Scalar Field Propagation in a Deterministic Medium -- The Canonical Channel II: Scattering in Random Media; 'Classical' Operator Solutions -- Appendix A1 -- Index -- IEEE Press Series on Digital and Mobile Communication.
Sommario/riassunto	"The book is based on the observation that communication is the central operation of discovery in all the sciences. In its "active mode" we use it to "interrogate" the physical world, sending appropriate "signals" and receiving nature's "reply". In the "passive mode" we receive nature's signals directly. Since we never know a prioriwhat particular return signal will be forthcoming, we must necessarily adopt a probabilistic model of communication. This has developed over the approximately

seventy years since it's beginning, into a Statistical Communication Theory (or SCT). Here it is the set or ensemble of possible results which is meaningful. From this ensemble we attempt to construct in the appropriate model format, based on our understanding of the observed physical data and on the associated statistical mechanism, analytically represented by suitable probability measures.Since its inception in the late '30's of the last century, and in particular subsequent to World War II, SCT has grown into a major field of study. As we have noted above, SCT is applicable to all branches of science. The latter itself is inherently and ultimately probabilistic at all levels. Moreover, in the natural world there is always a random background "noise" as well as an inherent a priori uncertainty in the presentation of deterministic observations, i.e. those which are specifically obtained, a posteriori.The purpose of the book is to introduce Non-Gaussian statistical communication theory and demonstrate how the theory improves probabilistic model. The book was originally planed to include 24 chapters as seen in the table of preface. Dr. Middleton completed first 10 chapters prior to his passing in 2008. Bibliography which represents remaining chapters are put together by the author's close colleagues; Drs. Vincent Poor, Leon Cohen and John Anderson"--