

<<通信原理>>

图书基本信息

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前言

In recent years , communication theory and technology has witnessed rapid development. In China , the application of telecommunication service has penetrated into almost every household and every person. The huge modern communication networks have been one of the important infrastructures in China. Correspondingly , the amount of telecommunication enterprises and employees there has also been increasing remarkably. Under this situation , the education of the new specialized personnel in the telecommunication field and the reeducation of the personnel in service have become important tasks. In addition , bilingual teaching is a new requirement in Chinese institutions of higher learning , and its importance has been recognized by more and more people. However , there is lack of appropriate textbooks in English on communication theory for Chinese students. This textbook is intended to accommodate the demand. The current communication networks in China have almost all been digitized. Signals transmitted in China's public communication networks are mainly digital ones; only the signals transmitted in the users loop and those signals for special applications are still analog. Hence , the discussion of analog signal transmission techniques is limited to a minimum , and the greater part of this book is devoted to discussions of digital communication including transforming , encoding and transmission of digital signals , as well as the digitization of analog signals. In the discussion on digital communication technology , some new communication technologies have been emphasized , for example , trellis code modulation (TCM) , orthogonal frequency division modulation (OFDM) , multiple access , spread spectrum , TURBO code , and , so on. Attention has been directed to the explanations that are associated with the application examples of the currently rapidly developed networks , such as satellite communication and computer communication networks , and so on.

内容概要

On the basis of introducing the principles of analog communication, the book is focused on the principles of digital communication, and describes the communication system structure, the specification, the operation principles, the performance analysis, and the design methods. New communication systems and technologies developed recently are emphasized. The book is suitable for electronic specialties of engineering school in Chinese general institution of higher learning as the textbook or reference for the junior and senior students and graduate students, and can also be used as a reference book or a textbook in the advanced study classes for the engineering and technical personnel engaged in communication engineering.

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作者简介

1952年毕业于北京大学，现任西安电子科技大学教授、博士生导师、中国通信学会理事、中国电子学会学术工作委员会委员。

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曾发表过通信工程领域学术论文100余篇，著译10余本。

其中《通信原理》(1980年)一书曾获电子工业部优秀教材特等奖、国家教委优秀教材奖。

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The above equation shows that if two arbitrary random variables in the Gaussian process are uncorrelated to each other, and then the n -dimensional joint probability density is equal to the product of each one dimensional probability density. The random variables which satisfy this condition are regarded statistically independent (to one another). Let us reiterate if the cross-correlation function of the two random variables equals 0, then they are regarded as being uncorrelated to each other; if the two dimensional joint probability density of the two random variables is equal to the product of the one dimensional probability densities, then it is regarded independent of each other. Two uncorrelated random variables are not always independent of each other; and the two independent random variables are certainly uncorrelated. We have proved in the above paragraph that random variables of the Gaussian process are uncorrelated and independent of one another. We shall only further discuss the characteristics of one dimensional Gaussian process as follows.

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