Random point processes in reliability and safety modeling (in Russian)

M.S. Finkelstein

176 p.
Saint-Petersburg, CSRI "Elektropribor"

The simplest random point processes are considered for solving problems of reliability and safety assessment. The basic processes are the nonhomogeneous Poisson and the renewal process.
The developed methods are applied to modeling the reliability of software performance, to safety at sea assessment and to some other practical settings.
The systematic mathematical treatment of the general repair theory is performed for the first time in the literature. It is based on the notion of the generalized renewal process. A detailed description of applications of this theory is presented for solving the problems of planning accelerated testing and estimating the influence of random environment on a lifetime random variable to name a few.
The monograph can be helpful to those involved in reliability and safety analyses of various objects at different stages.
References: 146. Fig.10. Tab. 2.

CONTENTS

166 p.
Saint-Petersburg, CSRI "Elektropribor", 1997
ISBN 5-900780-14-7

The principles and methodology are stated for the systems engineering of precision vacuum diffusion welding as a process component for developing objects of new technology. The technical solutions obtained on this basis are described, including techniques, methods, equipment facilities and algorithms for the welding technology design.

The book is intended for engineers and scientists engaged in precise instrument engineering.

CONTENTS

150 p.
St. Petersburg: SRC of Russia - CSRI "Elektropribor", 2001
ISBN 5-900780-30-9

Mathematical models of classical and promising gyroscopic inertial data sensors of various physical principles and laws of operation have been considered. Principles of operation and dynamics fundamentals of thermally disturbed inertial gyroscopic sensors, devices and systems based on them are stated. Mathematical models of thermal drift of float, dynamically tuned, electrostatic non-contact, wave solid-state, micromechanical and fiber-optic gyros have been constructed and investigated. Particular attention has been given to the new mathematical models of thermal drift making it possible to investigate the phenomenon of deterministic chaos in non-linear thermally disturbed dynamic systems with inertial sensors.

The book is intended for scientists, engineers and technicians. Also it can be useful for post-graduates and students of higher education institutes.

Bibliography: 16 references. 34 illustrations. 1 table.

CONTENTS