Aerospace and marine instrument-making sensors, devices and systems under thermal actions

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Mathematical models of classical and promising aerospace and marine sensors, devices and systems have been considered with regard to external and internal, deterministic and random thermal actions. Mathematical models of thermal processes and thermal drift of floated, dynamically tuned, electrostatic, hemispherical resonator, fiber-optic, micromechanical gyros and accelerometers, sensors and other physical parameters, electronics service units have been constructed and investigated. Particular attention has been given to construction of the new mathematical models enabling to investigate the non-linear dynamics of thermally disturbed sensors, devices and systems. The monograph presents a developed, generalized and significantly enhanced version of the book "Mathematical models of thermal drift of gyroscopic sensors of inertial systems", 2001, on the basis of the recent research conducted by its authors. Quite detailed extracts from it have been quoted here. It provides logical coherence of the material presentation not only for specialists and designers but also for students and post-graduates. Besides, such an approach makes it possible to get to know the current status of thermal disturbance issues of high-precision measurement instrumentation. The book contains systematic parts revealing the essence of interconnectivity of physical processes under operation of aerospace and marine articles.

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

Bibliography: 53 references. 162 illustrations. 10 tables.

CONTENTS

Session "Smart control systems"

Session "Gyroscopic systems"

Session "Data processing"

Session "Electronic and electromechanical devices of navigation and control systems"

Session "Computer technologies in navigation and control"

Session "Ship navigation"

Session "Integrated navigation and orientation systems"

Round table
"The results and forms of holding a conference using the Internet"

Gravity gradiometry