Technology of precision diffusion welding in precise instrument engineering

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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.

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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.

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