

1. Record Nr.	UNINA9911006760603321
Autore	Braasch Michael S
Titolo	Fundamentals of Inertial Navigation Systems and Aiding
Pubbl/distr/stampa	Stevenage : , : Institution of Engineering & Technology, , 2022 ©2023
ISBN	1-83724-525-8 1-5231-5337-7 1-83953-413-3
Edizione	[1st ed.]
Descrizione fisica	1 online resource (268 pages)
Collana	Radar, Sonar and Navigation
Disciplina	629.13251
Soggetti	Inertial navigation systems Remote sensing
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Chapter 1: Introduction and overview of inertial navigation systems -- Chapter 2: Reference frames and the mathematics of rotations -- Chapter 3: Inertial processing in a fixed reference frame -- Chapter 4: The impact of pseudo-forces in the velocity update -- Chapter 5: Earth rate, transport rate, gravity, and the velocity update -- Chapter 6: Spatial rate, navigation frame rotation, and position update -- Chapter 7: The wander azimuth mechanization -- Chapter 8: Navigation-grade inertial sensors -- Chapter 9: Inertial error analysis -- Chapter 10: Inertial error simulation -- Chapter 11: Inertial initialization - Part A -- Chapter 12: Introduction to integration and estimation theory -- Chapter 13: Estimation theory and introduction to the Kalman filter -- Chapter 14: The multivariate Kalman filter -- Chapter 15: Radionavigation Kalman filtering: case studies in two dimensions -- Chapter 16: GPS-only Kalman filtering -- Chapter 17: Introduction to inertial aiding -- Chapter 18: Inertial aiding in two dimensions -- Chapter 19: Inertial error modeling -- Chapter 20: GNSS-aided INS: loose coupling -- Chapter 21: GNSS-aided INS: tight coupling -- Chapter 22: Aided INS: observability and feedback -- Chapter 23: Baro-inertial vertical channel -- Chapter 24: Inertial initialization - Part B -- Chapter 25: Conclusion: inertial+Appendix A: Two important stochastic

processes -- Appendix B: One-at-a-time measurement processing.

Sommario/riassunto

This book provides an advanced introduction to inertial data processing along with design architectures and algorithms used to aid inertial navigation systems. The emphasis is on the high-end sensors and systems used in aerospace applications, but material is also included that provides an overview of low-cost sensor data processing.
