

Contents

Part I Satellite Navigation Signals and Signal Processing

Research on Communication Delay Model for Narrow Beam Inter-satellite Links in a TDMA System 3
Daoning Yang, Ying Liu, Gang Li, Jun Yang,
Qian Zhao and Zhixi Yang

Satellite-Induced Multipath Analysis on the Cause of BeiDou Code Pseudorange Bias 11
Hailong Xu, Xiaowei Cui and Mingquan Lu

Single Receiver Against Repeater Deception Jamming Technology Research 23
Ke Liu, Wenqi Wu, Kanghua Tang, Shihao Zhang and Zhijia Wu

The Effect of Cross-Correlation Items on the Intersystem Interference Between GPS, BDS and Galileo 37
Bingxue Chen, Xufang Huang, Xuyang Wang and Tangchao Li

An Improved High-Sensitivity Acquisition Algorithm for BDS B2 Signal 57
Xue Wang, Jianchao Du and Weibin Li

An Implementation of Navigation Message Authentication with Reserved Bits for Civil BDS Anti-Spoofing 69
Muzy Yuan, Zhicheng Lv, Huaming Chen,
Jingyuan Li and Gang Ou

Performance Analysis of Signal Diversity Reception for Large Aperture Array in Beidou RDSS System 81
Haodong Jiang, Jingyuan Li, Xiangwei Zhu and Gang Ou

Study on Multipath Model of BDS/GPS Signal in Urban Canyon 95
Yuze Wang, Xin Chen, Peilin Liu and Wenxian Yu

Part II Satellite Navigation Augmentation Technology

An Efficient Algorithm for Determining the Correspondence Between DFREI and σ_{DFRE} for a Dual-Frequency Multi-constellation Satellite-Based Augmentation System	109
Jie Chen, Zhigang Huang, Rui Li and Weiguang Gao	
Analysis on Ionospheric Delay Variogram Modeling in China	119
Dun Liu, Xiao Yu, Liang Chen and Weimin Zhen	
Scintillation Modeling and Its Application in GNSS	131
Dun Liu, Xiao Yu, Jian Feng and Weimin Zhen	
A New Algorithm for Receiver Integrity Monitoring with Receiver Clock Error Auxiliary	145
Ye Ren, Xiaohui Li and Longxia Xu	
FTS-Based Link Assignment and Routing in GNSS Constellation Network	155
Tian-yu Zhang, Gang-qiang Ye, Jing Li and Jing-wen Xu	
Construction and Performance Analysis of GPS/BeiDou/Galileo Real-Time Augmentation System	167
Liang Chen, Ying Liu, Changjiang Geng, Maorong Ge and Jiao Wenhai	
An Improved Algorithm of Ionospheric Grid Correction Based on GPS and Compass Multi-constellation	183
Haipeng Li, Rui Li, Ziqi Wang and Weiguang Gao	
A Study on Construction of Ionospheric Spatial Threat Model for China SBAS	195
Dun Liu, Jian Feng, Li Chen and Weimin Zhen	
RAIM Algorithm Based on Robust Extended Kalman Particle Filter and Smoothed Residual	209
Zhen Li, Dan Song, Fei Niu and Chengdong Xu	
Research on RAIM Algorithm Based on GPS/BDS Integrated Navigation	221
Fuxia Yang, Ershen Wang, Tao Pang, Pingping Qu and Zhixian Zhang	
RAIM Algorithm Based on Residual Separation	233
Zhaoyang Li, Qingsong Li and Jie Wu	
BDS Code Bias and Its Effect on Wide Area Differential Service Performance	245
Sainan Yang, Junping Chen, Yize Zhang, Chengpan Tang, Yueling Cao, Qian Chen and Wei Chen	

Ionospheric STEC and VTEC Constraints for Fast PPP	257
Yan Xiang, Yang Gao and Yihe Li	
Initial Assessment of BDS Zone Correction	271
Yize Zhang, Junping Chen, Sainan Yang and Qian Chen	
Part III Multi-source Fusion Navigation Technology	
Test Results of HiSGR: A Novel GNSS/INS Ultra Tight Coupled Spaceborne Receiver	285
Xiaoliang Wang, Deren Gong, Yanguang Wang, Bo Qu, Longlong Li, Xingyuan Han and Yansong Meng	
Multi-period PMF + FFT Acquisition Method Based on Symbol Estimation	297
Wen Liu, Tian-tong Gao, Zhong-liang Deng and Di Zhu	
The Cubature Kalman Filter and Its Application in the Satellite Star-Sensor/Gyro Attitude Determination System	307
Xiaobo Yuan, Chao Zhang and Chunling Shi	
TC-OFDM Receiver Code Tracking Method Based on Extended Kalman Filter	317
Jun Mo, Zhongliang Deng, Buyun Jia, Xinmei Bian and Jichao Jiao	
A RTK Float Ambiguity Estimation Method Based on GNSS/IMU Integration	329
Di Zhu, Zhong-liang Deng, Kai-qin Lin and Jun Lu	
Accuracy Analysis of GNSS/INS Deeply-Coupled Receiver for Strong Earthquake Motion	339
Hengrong Liu, Tisheng Zhang, Penghui Zhang, Farui Qi and Zhuo Li	
Research on MEMS IMU Aided BeiDou Receiver Carrier Loop Technology	351
Chunyu Liu, Lei Chen, Yangbo Huang, Ling Yong, Shaojie Ni and Feixue Wang	
An Improved Robust Fading Filtering Algorithm for the GPS/INS Integrated Navigation	363
Chen Jiang, Shu-bi Zhang and Qiu-zhao Zhang	
Rapid Extrinsic Calibration of Seamless Multi-sensor Navigation System Based on Laser Scanning	377
Yanglin Zhou, Guangyun Li, Fengyang Li, Ming Dong and Shuaixin Li	

The GPS/INS Integrated Navigation Method Based on Adaptive SSR-SCKF Cubature Kalman Filter	395
Zhe Yue, Baowang Lian and Chengkai Tang	
Cramér-Rao Lower Bound for Cooperative Positioning in Non-line-of-Sight Environments	407
Shiwei Tian, Zhi Xiong, Guangxia Li, Jing Lv and Shi Yu	
WLAN-Aided BDS Location Algorithm	417
Dengao Li, Zheng Wei, Jumin Zhao, Zhiyin Ma and Ya Liu	
Gaussian Mixture Filter Based on Variational Bayesian Learning in PPP/SINS	429
Qing Dai, Lifen Sui, Yuan Tian and Tian Zeng	
Vision-Aided Inertial Navigation System with Point and Vertical Line Observations for Land Vehicle Applications	445
Zhenbo Liu, Qifan Zhou, Yongyuan Qin and Naser El-Sheimy	
An Attitude Determination Algorithm by Integration of Inertial Sensor Added with Vision and Multi-antenna GNSS Data	459
Fengyang Li, Xuedong Jia, Yanglin Zhou, Ming Dong and Changyuan Chen	
An Improved Vector Tracking Loop of Ultra-Tight Integration for Carrier Phase Tracking	475
Wei Li, Jiahe Xia and Guoda Cheng	
Part IV PNT New Concept, New Methods and New Technology	
Research on Doppler Locating Method of LEO Satellite Backup Navigation System	487
Zhixin Deng, Guangwei Fan and Chenglong He	
A New Set of Spreading Code Based on Odd Kasami Sequence	497
Ruxia Wang, Zhongliang Deng and Di Zhu	
Data Transfer Problem in Navigation Satellite Network Based on Agility Link	509
Zhenwei Hou, Xianqing Yi, Yue Zhao and Yaohong Zhang	
Research on MIMU/UWB Integrated Indoor Positioning	521
Yishuai Shi, Ancheng Wang, Jinming Hao and Bo Jiao	
Progress on Novel Atomic Magnetometer and Gyroscope Based on Self-sustaining of Electron Spins	535
S.G. Wang, C. Xu, Y.Y. Feng and L.J. Wang	

Design of Buoy Array Configuration in the Autonomous Positioning System of Underwater Vehicles 543
Suyang Liu, Chunjie Qiao and Yangyang Wang

Hardware In-Loop System for X-ray Pulsar-Based Navigation and Experiments 553
Dapeng Zhang, Wei Zheng, Lizhi Sheng, Yidi Wang and Neng Xu

Magnetic Field Based Indoor Pedestrian Positioning Using Self-contained Sensors 565
Xiang Mu, Jiuchao Qian, Changqing Xu, Ling Pei, Peilin Liu and Wenxian Yu

3D Indoor Layered Localization of Multi-information Fusion Via Intelligent Terminal 579
Leinan He and Hu Lu

Efficient and Robust Convex Relaxation Methods for Hybrid TOA/AOA Indoor Localization 591
Enwen Hu, Zhong-liang Deng, Lu Yin, Di Zhu, Jun Lu and Yanping Zhao

Hyperbola Positioning Scheme Based on Continuous Entangled Light and Bell State Direct Measurement 607
Guan Fang, Chunyan Yang, Yang Bai, Xianglin Wang, Xiang Li and Kun Chen

Application of the Multipath Hemispheric Model in Monitoring Receiver 623
Tianxiang Su, Yuanlan Wen, Wei Feng, Guangming Liu, Hao Lan, Jiangwei Ma, Yun Zhang and Xu Zhang

The Test and Analysis on Pulse Signal Detection Abilities of the X-ray Detector MCP for Pulsar Navigation 637
Qingyong Zhou, Lizhi Sheng, Ziqing Wei, Siwei Liu, Kun Jiang, Chun Chen, Jianfeng Ji, Hongfei Ren and Gaofeng Ma

China Satellite Navigation Conference (CSNC) 2017

Proceedings: Volume II

Sun, J.; Liu, J.; Yang, Y.; Fan, S.; Yu, W. (Eds.)

2017, XIX, 647 p. 347 illus., Hardcover

ISBN: 978-981-10-4590-5