2022 DGON Inertial Sensors and Systems (ISS 2022)

Braunschweig, Germany **13 – 14 September 2022**



IEEE Catalog Number: CFP2257W-POD **ISBN:**

978-1-6654-9022-1

Copyright © 2022 by the Institute of Electrical and Electronics Engineers, Inc. All Rights Reserved

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

*** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.

IEEE Catalog Number:	
ISBN (Print-On-Demand):	
ISBN (Online):	
ISSN:	

CFP2257W-POD 978-1-6654-9022-1 978-1-6654-9021-4 2377-3464

Additional Copies of This Publication Are Available From:

Curran Associates, Inc 57 Morehouse Lane Red Hook, NY 12571 USA Phone: (845) 758-0400 Fax: (845) 758-2633 E-mail: curran@proceedings.com Web: www.proceedings.com



TABLE OF CONTENTS

	Reference
Editors Preface	
Table of Contents	iv
Author's Index	vi
P01 Design and Test Results of a Rad Tolerant Space Qualified CVG A. Torasso, R. Diram and S. Kowaltschek	1
P02 Rate-Integrating Gyroscope Operation in The Non-Linear Regime	17
D. Vatanparvar and A. M. Shkel	
P03 A novel mathematical derivation of the lock-in effect for Coriolis vibrating gyroscopes José Luis Gruver	35
P04 Study on the thermal equilibrium characteristics of fused silica hemispherical resonators with different structures	50
K. Yang, Y. Tao, Y. Pan, X. Tang, Y. Jia, L. Zeng, J. Liu and H. Luo	
P05 Investigation on influences of phase delay on performance of resonator gyroscopes	62
X. Tang, Y. Pan, L. Zeng, J. Li, Y. Tao, Y. Jia, K. Yang and H. Luo	
P06 High-end inertial navigation demonstration based on MEMS accelerometer A. Lenoble, P. Lavieville, Y. Foloppe, D. Marjoux and Y. Lenoir	rs 78
P07 Quartz MEMS Accelerometer for EMCORE Inertial Technology from Tactical to High-End Navigation	97
S. Zotov, R. Moore, S. Shtigluz, A. Lu and A. Popp	
P08 MIMU-M - A High Accuracy, Miniature INS based on GNSS and multiple MEMS IMUs	9 117
G. Luciani, R. Senatore and A. Pizzarulli	

P09 Small & Low Cost Missile Requirements on Inertial Sensors A. Newzella and J. Schoder	136
P10 On the Influence of Sample Rate, Calibration, and Allan Variance Parameters on the Accuracy of ZUPT-Based Pedestrian Navigation with MEMS IMUs <i>M. Kohl, B. Györfi and J. F. Wagner</i>	147
P11 Influence of IMU parameters on navigation performance in network- based collaborative navigation scenarios <i>P. Schuler, C. Kupitz, V. Hofmeister, A. Younas and T. Martin</i>	169
P12 Navigation Sensor Failure Detection without Sensor Redundancy <i>P. Panten, U. Bestmann and P. Hecker</i>	186
P13 GNSS Spoofing detector for GNSS aided Inertial System L. Davain, J. Nguyen	210
P14 Data-Driven Meets Navigation: Concepts, Models, and Experimental Validation <i>I. Klein</i>	224
P15 Motion Representation and Inertial Navigation in Clifford Algebras W. Ouyang and Y. Wu	245
P16 An Alternative Autonomous Location Determining V. Avrutov, O. Nesterenko and L. Ryzhkov	265
P17 Challenges for a hybrid CAI-based INS due to trajectory dynamics derived from real inertial datasets <i>N. B. Weddig B. Tennstedt and S. Schön</i>	276
P18 Dynamic Data Processing Method of Gravity Gradiometer Based on Equivalent Source <i>Li Da, Zhao Lin, Weng Haina, Li Chengsuo, Pei Zhi and Chen Jia</i>	296