IEEE TRANSACTIONS ON

SIGNAL PROCESSING

A PUBLICATION OF THE IEEE SIGNAL PROCESSING SOCIETY

IEEE Signal Processing Society

www.signalprocessingsociety.org

Indexed in PubMed® and MEDLINE®, products of the United States National Library of Medicine

PubMed MEDLINE U.S. National Library of Medicine

JANUARY 1, 2014 VOLUME 62 NUMBER 1 ITPRED (ISSN 1053-587X)

REGULAR PAPERS

A Dual-Phase Power Allocation Scheme for Multicarrier Relay System With Direct Link .... *Y. Ma, A. Liu, and Y. Hua* 5

An EM Approach for Time-Variant Poisson-Gaussian Model Parameter Estimation ..... *A. Jezierska, C. Chaux, J.-C. Pesquet, H. Talbot, and G. Engler* 17

Resilient Detection in the Presence of Integrity Attacks ..... *Y. Mo, J. P. Hespanha, and B. Sinopoli* 31

Nonuniform Sampling Walls in Wideband Signal Detection ..... *J. Font-Segura, G. Vazquez, and J. Riba* 44

The Stationary Phase Approximation, Time-Frequency Decomposition and Auditory Processing ..... *B. Mulgrew* 56

Matching Demodulation Transform and SynchroSqueezing in Time-Frequency Analysis ..... *S. Wang, X. Chen, G. Cai, B. Chen, X. Li, and Z. He* 69

(Contents Continued on Page 2)

IEEE TRANSACTIONS ON SIGNAL PROCESSING (ISSN 1053-587X) is published semimonthly by the Institute of Electrical and Electronics Engineers, Inc. Responsibility for the contents rests upon the authors and not upon the IEEE, the Society/Council, or its members. **IEEE Corporate Office:** 3 Park Avenue, 17th Floor, New York, NY 10016-5997. **IEEE Operations Center:** 445 Hoes Lane, Piscataway, NJ 08854-4141. **NJ Telephone:** +1 732 981 0060. **Price/Publication Information**: Individual copies: IEEE Members $20.00 (first copy only), nonmembers $569.00 per copy. (Note: Postage and handling charge not included.) Member and nonmember subscription prices available upon request. **Copyright and Reprint Permissions:** Abstracting is permitted with credit to the source. Libraries are permitted to photocopy for private use of patrons, provided the per-copy fee of $31.00 is paid through the Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923. For all other copying, reprint, or republication permission, write to Copyrights and Permissions Department, IEEE Publications Administration, 445 Hoes Lane, Piscataway, NJ 08854-4141. Copyright © 2014 by the Institute of Electrical and Electronics Engineers, Inc. All rights reserved. Periodicals Postage Paid at New York, NY and at additional mailing offices. **Postmaster:** Send address changes to IEEE TRANSACTIONS ON SIGNAL PROCESSING, IEEE, 445 Hoes Lane, Piscataway, NJ 08854-4141. GST Registration No. 125634188. CPC Sales Agreement #40013087. Return undeliverable Canada addresses to: Pitney Bowes IMEX, P.O. Box 4332, Stanton Rd., Toronto, ON M5W 3J4, Canada. IEEE prohibits discrimination, harassment and bullying. For more information visit http://www.ieee.org/nondiscrimination. Printed in U.S.A.

IEEE

(Contents Continued from Page 1)

Joint User Grouping and Transceiver Design in a MIMO Interfering Broadcast Channel ..... *M. Razaviyayn, M. Baligh, A. Callard, and Z.-Q. Luo* 85

Cramér-Rao Bounds for UMTS-Based Passive Multistatic Radar ..... *S. Gogineni, M. Rangaswamy, B. D. Rigling, and A. Nehorai* 95

Robust Training Sequence Design for Correlated MIMO Channel Estimation .... *N. Shariati, J. Wang, and M. Bengtsson* 107

Exact LTP Representation of the Generalized Periodic-Reference FxLMS Algorithm ..... *T. Haarnoja, K. Tammi, and K. Zenger* 121

A New Deterministic Identification Approach to Hammerstein Systems ..... *C. Yu, C. Zhang, and L. Xie* 131

Learning Nonlinear Generative Models of Time Series With a Kalman Filter in RKHS ..... *P. Zhu, B. Chen, and J. C. Príncipe* 141

Uniformly Improving Maximum-Likelihood SNR Estimation of Known Signals in Gaussian Channels ..... *E. Stathakis, J. Jaldén, L. K. Rasmussen, and M. Skoglund* 156

EM- and JMAP-ML Based Joint Estimation Algorithms for Robust Wireless Geolocation in Mixed LOS/NLOS Environments ..... *F. Yin, C. Fritsche, F. Gustafsson, and A. M. Zoubir* 168

Convergence and Stability of Iteratively Re-weighted Least Squares Algorithms ..... *D. Ba, B. Babadi, P. L. Purdon, and E. N. Brown* 183

Permutation Meets Parallel Compressed Sensing: How to Relax Restricted Isometry Property for 2D Sparse Signals ..... *H. Fang, S. A. Vorobyov, H. Jiang, and O. Taheri* 196

Non-Negative Matrix Factorization Revisited: Uniqueness and Algorithm for Symmetric Decomposition ..... *K. Huang, N. D. Sidiropoulos, and A. Swami* 211

Bayesian Model Comparison With the g-Prior ..... *J. K. Nielsen, M. G. Christensen, A. T. Cemgil, and S. H. Jensen* 225

Biosensor Arrays for Estimating Molecular Concentration in Fluid Flows .... *M. Abolfath-Beygi and V. Krishnamurthy* 239

Statistical Analysis of a Jointly Optimized Beamformer-Assisted Acoustic Echo Canceler ..... *M. H. Maruo, J. C. M. Bermudez, and L. S. Resende* 252