

*PH
I-68/4m*

IEEE TRANSACTIONS ON MAGNETICS

A PUBLICATION OF THE IEEE MAGNETICS SOCIETY

FEBRUARY 2013

VOLUME 49

NUMBER 2

IEMGAQ

(ISSN 0018-9464)

PART I OF TWO PARTS



SELECTED PAPERS FROM THE TWENTY-THIRD MAGNETIC RECORDING CONFERENCE (TMRC 2012)
San Jose, California, USA August 20–22, 2012

IEEE TRANSACTIONS ON MAGNETICS

A PUBLICATION OF THE IEEE MAGNETICS SOCIETY

FEBRUARY 2013

VOLUME 49

NUMBER 2

IEMGAQ

(ISSN 0018-9464)

PART I OF TWO PARTS

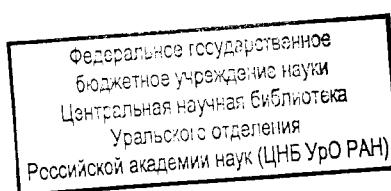
**SELECTED PAPERS FROM THE TWENTY-THIRD MAGNETIC RECORDING CONFERENCE (TMRC 2012)
San Jose, California, August 20–22, 2012**

- 659 **Chairman's Foreword**
P. R. Goglia, G. J. Tarnopolsky, and S. Yuan

PAPERS

- 662 **Nonbinary LDPC Coding and Iterative Decoding System With 2-D Equalizer for TDMR R/W Channel Using Discrete Voronoi Model**
Y. Nakamura, Y. Okamoto, H. Osawa, H. Aoi, and H. Muraoka
- 668 **Control of Microstructure and Magnetic Properties of FePt Films With TiN Intermediate Layer**
K. F. Dong, H. H. Li, J. F. Hu, Y. G. Peng, G. Ju, G. M. Chow, and J. S. Chen
- 675 **Joint Message-Passing Decoding of LDPC Codes and 2-D ISI Channels**
J. Yao, K. C. Teh, and K. H. Li
- 682 **Tetragonal Heusler Compounds for Spintronics**
C. Felser, V. Alijani, J. Winterlik, S. Chadov, and A. K. Nayak
- 686 **HAMR Recording Limitations and Extendibility**
X. Wang, K. Gao, H. Zhou, A. Itagi, M. Seigler, and E. Gage
- 693 **5 Tdots/in² Bit Patterned Media Fabricated by a Directed Self-Assembly Mask**
A. Kikitsu, T. Maeda, H. Hieda, R. Yamamoto, N. Kihara, and Y. Kamata
- 699 **Thermal Asperity Sensor Application to Hard Disk Drive Operational Shock**
D. Zhao, X. Wei, B. Liu, S. Chen, Y. Wang, and A. Peng
- 703 **Head-Stack Assembly Offtrack Dynamics Investigation via Slider Protrusion Touch Down**
D. Zhao, Yu Wang, X. Wang, X. Wei, S. Chen, and K.-L. Tsui

(Contents Continued on Page 658)



- 707 **Fabrication and Characterization of FePt Exchange Coupled Composite and Graded Bit Patterned Media**
H. Wang, H. Zhao, T. Rahman, Y. Isowaki, Y. Kamata, T. Maeda, H. Hieda, A. Kikitsu, and J.-P. Wang
- 713 **Scalability of Spin Accumulation Sensor**
M. Yamada, D. Sato, N. Yoshida, M. Sato, K. Meguro, and S. Ogawa
- 718 **L1₀-Ordered FePt-Based Perpendicular Magnetic Recording Media for Heat-Assisted Magnetic Recording**
B. S. D. C. S. Varaprasad, M. Chen, Y. K. Takahashi, and K. Hono
- 723 **Channel Characterization and Performance Evaluation of Bit-Patterned Media**
M. Y. Lin, M. R. Elidrissi, K. S. Chan, K. Eason, M. Chua, M. Asbahi, J. K. W. Yang, N. Thiagarajah, and V. Ng
- 730 **HAMR Drive Performance and Integration Challenges**
T. Rausch, J. D. Trantham, A. S. Chu, H. Dakroub, J. W. Riddering, C. P. Henry, J. D. Kiely, E. C. Gage, and J. W. Dykes
- 734 **Signal Model for Shingled Magnetic Recording Based on Data Dependent Erase Band Analysis Under Track Squeeze**
E. Hwang, M. Jin, J. Park, E. F. Haratsch, I. Djurdjevic, and Y. X. Lee
- 739 **Pulsed Thermally Assisted Magnetic Recording**
Y. Wang, T. Maletzky, E. X. Jin, D. Zhou, J. Smyth, and M. Dovek
- 744 **Characterization of Adjacent Track Erasure in Perpendicular Recording by a Stationary Footprint Technique**
Y. Tang, S. Song, and L. Guan
- 751 **Simulation of Heat-Assisted Magnetic Recording Using Renormalized Media Cells**
R. H. Victora and P.-W. Huang
- 758 **Writability Improvement in Perpendicular Recording Media Using Crystalline Soft Underlayer Materials**
S. N. Piramanayagam, B. Varghese, H. K. Tan, Y. Y. K. Hnin, W. K. Lee, I. Okamoto, L. Wu, and D. Tripathy
- 765 **Understanding Signal and Noise in Heat Assisted Magnetic Recording**
J.-G. Zhu and H. Li
- 773 **Bit Patterned Media at 1 Tdot/in² and Beyond**
T. R. Albrecht, D. Bedau, E. Dobisz, H. Gao, M. Grobis, O. Hellwig, D. Kercher, J. Lille, E. Marinero, K. Patel, R. Ruiz, M. E. Schabes, L. Wan, D. Weller, and T.-W. Wu
- 779 **HAMR Areal Density Demonstration of 1+ Tbpsi on Spinstand**
A. Q. Wu, Y. Kubota, T. Klemmer, T. Rausch, C. Peng, Y. Peng, D. Karns, X. Zhu, Y. Ding, E. K. C. Chang, Y. Zhao, H. Zhou, K. Gao, J.-U. Thiele, M. Seigler, G. Ju, and E. Gage
-
- 783 **CONFERENCE AUTHOR INDEX**