Technical Program
MORIS 1994

Monday, September 26,1994

TUTORIAL SESSION

MO Recording Phenomena
Mansuripur, M.
Noncontact AFM for Magnetic and Nonmagnetic Measurements
Dahlberg, E.D.
Short Wavelength Lasers
Tang, W.

Tuesday, September 27,1994

27-A KEY NOTE TALKS

27-A-01 Role of Technology in the Growth of the Optical Storage Marketplace,
Engler, E.M.
27-A-02 Evolution of Metal Multilayers for MO Recording
Carcia, P.F.

27-B NOVEL MO MATERIALS

27-B-01 EuO/Tb-Fe-Co Exchange Coupled Films
Gambino, R.J.
27-B-02 Giant Magneto-Optical Transition for Pt Substituted MnSb Films with NiAs Structure
Takahashi, M., Shoji, H., Tsunoda, M., Saito, S., Wakiyama, T., Takeda, Y. and Itakura, Y.
27-B-03 Surface Morphology on Bi Layers in MnBi Magneto-Optical Disks
Nakada, M. and Okada, M.
27-B-04 Magneto-Optical Garnet Disks with Ultra-Fine Grains
K. Shimokawa, K., Dohnomae, H., Mukai, T., Yamada, H., Matsuda H., and Daimon M.

27-C MULTILAYERS

27-C-01 Domains in CoPd Multilayers
Kambersky, V.
27-C-02 Origin of Perpendicular Magnetic Anisotropy in M-O Multilayers
Bayreuther, G.
27-C-03 Magnetic Phase Transitions and Scaling of Critical Point in Multilayer Systems
Hu, X., Takahashi, M. and Kawazoe, Y.
27-C-04 Crystal-Field Screening in Thin Films and Multilayers
Skomski, R., Brennan and, S., Coey, J.M.D.
27-C-05 Exchange-Coupling in Triple-Layered Films

Kobayashi, T., Okayama, A., Morioka, H., Shiomi, S. and Masuda, M.

27-C-06 Sputtered CoNi/Pt Multilayers for M.O. Application
Lodder, J. C., Guo, Y.X., Van Drent, W.P., Meng, Q. and Ruhrig, M.

27-D MANUFACTURING AND MARKETS

27-D-01 Applications, Requirements and Challenges for Optical Storage
Bell, A.

27-D-02 Small MO Drive for New Market Creation in Multimedia Environment
Ogawa, K.

27-D-03 A New Single Disk Sputter System for Manufacturing of MO-Media
Brauer, G., Cord. B., Dicken, W. and Schulz, S.

27-D-04 Protective Properties of Off-Stoichiometric SiNx Films for Magneto-Optical Disks
Nakada, M., Karube, H., Kubogata, M. and Okada, M.

27-D-05 Low-Permeability Target Materials for Magneto-Optical Recording Media
Masuda, K. and Meguro, T.

27-S New High Density Schemes

Wednesday, September 28,1994

28-E DOMAIN PHYSICS

28-E-01 Magnetization Reversal in Ultrathin Films with Perpendicular Anisotropy
Ferre, J., Grolier, V., Kirilyuk, A., Jamet, J.P., Renard, J. and D.

28-E-02 High Coercivity and Voids in RE-TM Thin Films
Yatsuya, S., Lorentz, R.D. and Callaby, D.R.

28-E-03 Domain Wall Pinning in Amorphous TbFeCo Films on Patterned Substrates
Gadetsky, S., Suzuki, T.*, Erwin, J.K. and Mansuripur, M.

28-F FIELD MODULATION

28-F-01 Magnetic Flying Integrated Head for Magneto-Optical Recording with Magnetic Field Modulation
Albertini, J.B.

28-F-02 The Effect of Interface Structure on Domain Wall Energy
Liang, J.M.

28-F-03 Magnetic Capping Layer Effect of Very Thin Cobalt Film on TbFeCo
Ohnuki, S. and Ohta, N.

28-F-04 TbFeCo Single Layer Disks for Magneto-Optical High Density Recording
Ohlsen, H., Awano, H. and Ojima, M.

28-G NANO-CHARACTERIZATION AND FUTURE TECHNOLOGY

28-G-01 Scanning Laser Microscopy for the Evaluation and Characterisation of Magneto-Optic Recording Materials and Systems
Wright, C.D., Clegg, W.W., Heyes, N.A.E. and Boudjemline, A.

28-G-02 High Power Laser Diode Lifetime and Degradation Mechanisms:
A Study by Raman Microprobe Spectroscopy
Tang, W., Rosen, H. and Altendorf, E.
28-G-03 Spin Polarized LEEM for Surface and Thin Film Magnetism
Altman, M.S., Pinkvos, H. and Bauer, E.
28-G-04 Magnetic Force Microscopy for Micromagnetics
Dahlberg, E.D., Proksch, R. and Foss, S.
28-G-05 Writing of Magnetic Domains Using Scanning Tunneling Microscope
Miyamoto, M., Ushiyama, J., Hosaka, S. and Imura, R.

28-P POSTER SESSION

28-P-01~04 NOVEL METAL-BASED MULTILAYERS

28-P-01 Magnetic and Magneto-Optical Properties of (Nil-xCox)/Pt Multilayers
Krishnan, R., Seddat. M., Porte, M., Tessier, M., Nyvlt, M.,Smetana, Z. and Visnovsky, S.
28-P-02 Improvement of the Magnetic Sensitivity of Pt/Co Multilayer Magneto-Optical Disks
Ushiyama, J., Awano, H. and Takahashi, M.
28-P-03 Sputter-Etching Effect of Si Nitride Underlayers in Co/Pt Multilayer Films
Chang, C.-H. and Kryder, M.H.
28-P-04 The Magneto-Optical and Microstructural Properties of CoPt Multilayers Grown on Ga203
Hu, J.P. and Lin, P.

28-P-05~08 AMORPHOUS MULTILAYERS

28-P-05 Magnetic and Magneto-Optical Properties of Nd(Tb,Dy)/FeCo Multilayers
Fujiwara, Y. , Yu, X.Y., Watabe, H., Iwata, S., Tsunashima, S. and Uchiyama, S.
28-P-06 Exchange-Coupled GdFeCo/DyFeCo Magnetooptical Bilayers with Planar and Perpendicular Anisotropy
Sbiaa, R., Gall, H.L. and Yurchenko, S.*
28-P-07 Magnetic and Magneto Optical Properties of PrGd/FeCo Multilayers
Watabe, H., Fujiwara, **Y.,** Yu, X.Y., Iwata, S. and Tsunashima, S.
28-P-08 Preparation and Some Galvanomagnetic Properties of GdCo Multilayer Films
Sorokin, A.N. and Svalov, A.V.

28-P-09~14 OXIDE FILMS

28-P-09 Co/Ti Substituted Ba Hexaferrite Thin Films Produced by Pulsed Laser Deposition
Papakonstantinou, P., Atkinson, R., Salter, I.W. and Gerber, R.
28-P-10 Magnetic Properties and Magnetization Reversal in Garnet Multilayers
Shen, J.X.**,** Wierman, K.W., Zhang, Y.B, Kirby, R.D. and Sellmyer, D.J.
28-P-11 Improvement of Magneto-Optical Recording Characteristics of Garnet Films by Stacking with Stressed Overlayer
Nakagawa, K. and Itoh, A.
28-P-12 Improved Surface Flatness of a Bi-Substituted Dy Iron Garnet Film for Magneto-Optical Recording by Sputter-Etching
Sato, R., Kawamura, N. and Tamaki, T.
28-P-13 Preparation of Magneto-Optical Coated Films

Komuro, E., Hirano, T.*, Kawai, N., Namikawa, T. and Yamazaki, Y

28-P-14 Magneto-Optic, Magnetic and Microstructural Properties of Garnet Films Produced by Pulsed Laser Ablation
Duan, M., Grishin, A.M., Rao, K.V. and Suzuki, T.

28-P-15~17 THEORY OF MAGNETISM

28-P-15 Curie Temperature and Band Structure of Metallic Ferromagnets
R. Skomski, R., Rao, X.-L., Qi , Q.-N. and J. M. D. Coey, J.M.D.

28-P-16 Electronic and Magnetic Structure in Multilayer Systems
Takahashi, M., Hu, X. and Kawazoe, Y.

28-P-17 Magnetization Processes in Photomagnetic Information Medium
Kovalenko, V., Davidenko, I. and Tychko, A.

28-P-18~22 MAGNETISM OF MULTILAYERS

28-P-18 (Pt/Co/Pt)/X Multilayer Films for Perpendicular Recording Applications
Bertero, G.A. and Sinclair, R.

28-P-19 Stress-Induced Anisotropy in Co/Pd Multilayer Films
Kim, Y.-S. and Shin, S.-C.

28-P-20 The Effect of Substrate and Thickness on the Domain Structure for Co/Pd Thin Films
Wu, T.-H. *(Yunlin Inst. of Technol., Taiwan)*

28-P-21 Wall Energy Density and Exchange Stiffness Constant of Amorphous TbNd-FeCo Films
Raasch, D., Hansen, P. and Mergel, D.

28-P-22 Magnetic and Magneto-Optical Properties of (Co-Bi)/Pt and Co/(Pt-Bi) Multilayers
Suzuki, T., Iwata, S., Brandle, H. and Weller, D.

28-P-23~28 MAGNETISM OF AMORPHOUS FILMS

28-P-23 Structural Analysis of Amorphous TbFeCo Thin Films by Using EXAFS
Awano, H., Ogata, K., Ohlsen, H. and Ojima, M.

28-P-24 Effect of Perpendicular Anisotropy on Magnetic Properties in Amorphous DyGdFe
Saito, T., Miyano, H., Shinagawa, K. and Tsushima, T.

28-P-25 Origin of the Giant Perpendicular Magnetic Anisotropy of "Amorphous" Tb-Gd-Fe Thin Films
Takeno, Y., Kaneko, K. and Shimada, Y.

28-P-26 Magneto-Optical Characteristics of Tb-Fe-Co Layers Covered with Perpendicular Magnetic Co-Cr Layers
Song, K.-B., Yu, S.-C. and Naoe, M.

28-P-27 Temperature Dependence of the Rotational Magnetic Anisotropy in Amorphous Gd-Co Films
Kurlyandskaya, G.V. and Svalov, A.V.

28-P-28 Magnetic and Magneto-Optic Properties of Amorphous Co-Er Amorphous Films
Driouch, L., Seddat, M., Krishnan, R., Korenivski, V. and Rao, K.V.

28-P-29~37 MAGNETO-OPTICAL EFFECT

28-P-29 Magneto-Optical Kerr Rotation Spectra in Sputtered Granular Co-Au Alloy Films
Katayama, T., Fujitani. D., Geerts, W., Okusawa, N. Suzuki, Y, Lee, C.-G, Takeda, N.H., Kataoka, , Fukamichi, and Shimada, Y.

28-P-30 Surface Plasma Resonance in Magneto-Optical Kerr Effect of Fe, Co Island Film

Nakajima, K. and Miyazaki, T.

28-P-31 Kerr Effect of Tb-Fe-Co-Cr Films on Ferromagnetic Amorphous Ribbons
Lee, Y .-P., Huang, D.-R., Hsiao, T.-C.and Chang, S.-P.

28-P-32 Magnetooptical Spectra of MnSb Crystal between 1.2 and 6.4eV
Sato, K., Tosaka, Y. and Ikekame, H.

28-P-33 Magneto-Optical Studies of Anomalous Anisotropy of the
Cdl-xMnxTe Crystal
Chen, L.-Y., Zhou, S.-M., Ma, H.-Z., Su, Y., Qian, Y.-H., Chen, C.-J. and Wang, X.-Z.

28-P-34 The Photoferromagnetic Effect Existence and Alternating Magnetization
Characteristics in CdCr2Se4

28-P-35 Photoinduced Absorption in a Bulk and a Thin Film of Yttrium Iron Garnet
Hisatake, K., Matsubara, I., Maeda, K., Yasuoka, H., Mazaki, H. and Uematsu, K.

28-P-36 Microstructural, Magnetic and Magneto-Optical Properties of (100) and (111) Oriented Thick "fcc"Cobalt Single Crystal
Ozkan, M., Suzuki, T., Miller, D.，Kellock, A., C.-A. Chang, C.-A. and Sinclair, B.

28-P-37 Optical Properties' Peculiarities of Co-Based Amorphous Foils
under Magnetic Field
Kravets, V.G., Poperenko, L.V.and Shaikevich, I.A.

28-H PANEL SESSION: CRITICAL PATH FOR 10X MO

28-H-01 Approaches to 100 Gbit/in2 Recording
Kryder, M.H. (Carnegie Mellon Univ., U.S.A.)

28-H-02 Magnetic Super Resolution
Takahashi, A. (Sharp, Japan)

28-H-03 8X Media-From a Drive's Prospect
Chung, C.H. and Hsu, S. Mansuripur, M.

28-H-04 High Capacity MO Recording Channel Issues
Cheng, D.C. and Hurst, J.E.

28-H-05 High Density Land/Groove Recording
Iwanaga, T.

28-H-06 MO System Using a Short Wavelength Light Source
Fukumoto, A., Takeshita, Y. and lchimura, I.

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29-I ELECTRONIC STRUCTURES

29-I-01 Calculated Electronic Properties of Superlattices for Magneto-Optic Recording
Victora, R.H. and MacLaren, J.M

29-I-02 The Kerr Effect from First Principles Theory: Application to HCP/FCC Cobalt .
Gasche, T., Brooks, M.S.S. and Johansson, B.

29-I-03 On the Oscillation of the Magneto-Optical Properties of Ultrathin Epitaxial Fe Films
Geerts, W., Katayama, T. and Suzuki, Y.

29-Q POSTER SESSION

29-Q-01~03 MO-MEDIA PROCESSING AND RELIABILITY

29-Q-01 Dielectric AIN Thin Films with High Refractive Index Prepared by Plasma Free DC Sputtering
Song, K.-B. and Naoe, M.

29-Q-02 The Special Features of the Light Propagation in the Thin and Multi-Layer Magnitooptical Films
Zaets, W.I.

29-Q-03 Evaluation of the Reliability and the Sensitivity of Quadri- Layered MO Disk with an AlTa Alloy Reflection Layer by PCT Environmental Test
Miyamoto, T., Onishi, T., Yamamoto, S., Yoshikawa, K. and Koga, K.

29-Q-04~09 MAGNETIC SUPER RESOLUTION

29-Q-04 Super Resolution Readout Using Magneto-Static Coupling
Kawano, T., Ito, H., Yoshida, H. and Kobayashi, Y.

29-Q-05 Influence of Composition in Double Layer Films for Super Resolution
Moritani, I., Takahashi, K. and Kondo, A.

29-Q-06 Improvement in Linear Density of Single Masked Rear Aperture Detection Disks
Takahashi, K. and Kondo, A.

29-Q-07 Rear Aperture Detection of Exchange-Coupled Trilayer Film wihtout Initializing Magnetic Field
Matsumoto, K. and Shono, K.

29-Q-08 The Analysis of Readout Signal and the Aperture on Magnetically Induced Super Resolution
Liu, P.-Y. and H.-P. D. Shieh

29-Q-09 A Heat Conduction Solution for MO Recording and its Application to the Mask Structure of an MSR Disk
Shih, O.W., Takemoto, Y. and Kaneko, M.

29-Q-10~13 HIGH DENSITY RECORDING

29-Q-10 Durability of Mark-Edge Recording MO Media
Shimazaki, K., Goto, T., Yoshihiro, M. and Ohta, N.

29-Q-11 The Characterization of Tracking Servo Signal and Cross-Talk of Magneto-Optical Disks with Cr Guiding Layers
Matsuda, R. and Taki, K.

29-Q-12 On the Recording Code which Improves the Groove Parameter
Tanaka, K., Mizuno, H. and Takada, T.

29-Q-13 Write Compensation for Narrow-Track Pitch Recording
Tanabe, T., Amano, N., Arai, R. and Fukuzawa, K.

29-Q-14~18 EXCHANGE COUPLING DOW AND DOMAIN PHYSICS

29-Q-14 Magneto-Optical Disk with Exchange-Coupled Double-Layer and Heat-Sink Layer for Red Laser
Kubogata, M., Ogawa, M., Nakada, M. and Okada, M.

29-Q-15 Numerical Estimation of the Magneto-Statically Coupled DOW Method for Short Wavelength Recording
Kikitsu, A. and Ichihara, K.

29-Q-16 The Most Robust Control Factor Values for Recording with Thermal Interference Uniforming Technique on Direct Overwrite Magneto-Optical Disk
Morita, K., Saito, J., Miyata, K., Kurita, S. and Akasaka, H.

29-Q-17 How to Match Direct Overwrite Magneto-Optical Disk with High Density Recording Technique
Kurita, S., Saito, J. and Akasaka, H.

29-Q-18 Magnetization Reversal Analysis on Exchange-Coupled Quadrilayer Films by Faraday Loop Measurement
Fujii, Y., Tokunaga, T., Tsutsumi, K., Suzuki, S. and Sato, K.

29-Q-19~23 MEASUREMENTS

29-Q-19 Bit Observation Using High Resolution Lorentz Microscopy
Yatsuya, S. and Sexton, J.H.
29-Q-20 The Design of a Combined Optical Disc Tester and R- θ Scanning Laser Microscope
Heyes, N.A.E., Wright, C.D., Clegg, W.W. and Zhao, J.
29-Q-21 A New Method to Obtain M-H Hysteresis Loops Using Torque Magnetometer
Hur, J. and S.-C. Shin, S.-C.
29-Q-22 Study of Domain Formation Mechanism of Magneto-Optical Materials Using Micro Hall Effect Measurements
Takahashi, M., Gadetsky, S.N. and Mansuripur, M.
29-Q-23 Direct Observation of Spin-Polarized Tunneling by Scanning Tunneling Microscopy
Wu, Z. and Gan, F.

29- J STRUCTURE ANALYSIS

29-J-01 Connection between Structure and Magnetism in Superlattices
Schuller, I.K., Kelly, D., Gallego, J., Moran, T., Lederman, D., Schad, R., Bruynseraede, Y., Korenivski, V., Rao, K.V., Larsen, K.K., Bottiger, J., Gyorgy, E.M.and Van Dover, R.B.
29-J-02 Structure-Property Characterization of Magnet-Optic Thin Films
Sinclair, R., Bertero, G.A. and Visokay, M.R.
29-J-03 Coercivity Mechanism and Microstructure of Co/Pt and Co/Pd Multilayers
Suzuki, T., Notarys, H., Savoy, R. and Dobbertin, D.

29-K HIGH DENSITY RECORDING

29-K-01 High Resolution Magneto-Optics Using the Sagnac Effect
Kapitulnik, A.
29-K-02 Optical Data Storage Using a Solid Immersion Lens
Tenis, B.D., Mamin, H.J. and Rugar, D.
29-K-03 Examination on Application of a Liquid Crystal Microlens to an Optical Head of Optical Disc Driver
Ishigame, M., Goto, H., Ebata, I., Nose, T. and Sato, S.
29-K-04 MSR Disks with Three Magnetic Layers Using In-Plane Magnetization Films
Nishimura, N., Hiroki, T. and Okada, T.
29-K-05 Magnetically-Induced Super Resolution Using Magneto-Static Coupling
Tamanoi, K. and Shono, K.
29-K-06 New Readout Technique Using Domain Collapse on Magnetic Multilayer
Miyamoto, H., Andoo, K., Saga, H., Sukeda, H. and Ojima, M.

CLOSING REMARKS
Itoh, A.