Technical Program
MORIS/APDSC 2000

Monday, October 30, 2000

TUTORIAL SESSION

Optical disk data storage
M. Mansuripur
Continuous challenges for extremely-high density magnetic recording
Y. Miura

Tuesday, October 31, 2000

OPENING SESSION

Opening Address
N. Ohta
T. Suzuki

TuA-01 Optical storage technology development in Taiwan (Keynote)
E. G. Lean
TuA-02 Optical disk technologies in network era (Keynote)
M. Tokoro

PHASE CHANGE MATERIAL AND PHYSICS

TUB-01 Real-time studies of mark formation processes in phase-change and magneto-optical media using a two-laser tester (Invited)
M. Mansuripur
TUB-02 Simulation and characterization of phase change optical disks (Invited)
T. C. Chong, L. P. Shi, J. M. Li and P. K. Tan
TUB-03 Amorphization and crystallization mechanisms in GeSbTe-based phase change optical disks (Invited)
B. Hyot, V. Gehanno, B. Rolland, A. Fargeix, C. Vannufel, F. Charlet, B. BCchevet, J. M. Bruneau and "P. J. Desre

MEASUREMENT AND NANOFABRICATION

TuC-01 Ion beam patterning of magnetic media (Invited)
B. D. Terris, C. T. Rettner, M. E. Best. A. Moser, J. Lohau, J. E. E. Baglin, and A. J. Kellock
TuC-02 Irradiation-fabricated nanostructures: process modeling and resulting magnetization reversal mechanisms (Invited)
T. Devolder, C. Chappert, H. Bernas, Y. Chen, J. FerrC, V. P. Jamet, and V. Mathet
TuC-03 Domain dynamics study using magneto-optical microscope magnetometer (MOMM) having 400-nm spatial resolution (Invited)
S. B. Choe and S. C. Shin,
TuC-04 High resolution imaging of magnetic domains with magnetic soft X-ray Microscopy (Invited)
P. Fischer, T. Eimiiller, G. Schiitz, Tsunashima, 'I'M. Kumazawa, N. Takagi, G. Denbeaux and D.

Attwood

TuC-05 Precession dynamics in NiFe thin films, induced by short magnetic field pulses (Invited)
Th. Gerrits, W. van den Berg, 0 . Gielkens, K. J. Veenstra and Th. Rasing

TuC-06 Magnetization Reversal in a Network of Coupled Dots
R. Hyndman, P. Meyer, J. FerrC, J. P. Jamet, V. Mathet, C. Chappert, J. Gierak

TuC-07 Optimal hole depth of magnetic domain pinning effect of patterned DyFeCo thin film for the application of magneto-optical recording
T. H. Wu, L. X. Ye, J. C. Wu and Y. W. Huang, B. M. Chen, and H. P. D. Shieh

POSTER SESSION
RECORDING MATERIAL AND PHYSICS I

TuD-01 Mechanical Properties of Phase-Change Recording Media-GeSbTe Films
C.-A. Jong, W. Fang and T.-S. Chin

TuD-02 Dynamic response of reflectivity of metal/GeS_2, systems during recording laser irradiation in nano second range
A. Takeichi, Y. Takeda, T. Fukano, N. Kato, and T. Motohiro

TuD-03 Preparation studies of calcium sulphide films for optical data storage
R. Carey, D. M. Newman, I. Viney and J. P. Wu

TuD-04 Using diffraction anomalies to produce strong enhancement of magneto-optic behavior
R. Carey, D. M. Newman and R. J. Matelon

TuD-05 A magneto-optical study of Co on stepbunched vicinal substrates
R. Leermakers, A. M. Keen, F. Nguyen Van Dau, Th. Rasing

TuD-06 Simulations for deformation processes of arbitrary domain shape in MO Media
A. Itoh, L. Zhou, K. Sekine, A. Tsukamoto and K. Nakagawa

TuD-07 Magnetic and magneto-optical properties of a novel ferromagnetic semiconductor $CDGEP_2$: MN
K. Sato, G. A. Medvedkin, K. Hayata, Y. Hasegawa, T. Nishi, and T. Ishibashi

TuD-08 Thermal stability of written bits in magneto-optical recording media
M. Mochida, M. Birukawa, R. Sbiaa and T. Suzuki

TuD-09 Structure and magnetic properties of epitaxial $CrPt_3$, alloy films
K. Sugihara, H. Ito, T. Kato, S. Iwata, and S. Tsunashima

TuD-10 Relationship between the transition metal magnetization direction and the sign of Faraday and Kerr rotations in rare-earth transition metal alloys for MO recording
M. Armand, V.Gehanno, L. Poupinet, H. Le Gall, and B. Bichevet

TuD-11 Magneto-optical spectroscopy of orthoferrite thin films
N. Keller, J. Mistrik, S. ViSoovskg, *M. Guyot and R. Krishnan

TuD-12 Optimization of a readout channel using FARADAY+KERR MO effects
E. Il'yashenko, A. Kozlov, A. Likhter, J. Raastad, L. Helseth

TuD-13 Study on the fatigue behavior of the R.F magnetron sputtered magneto-optic SmDyFeCo Films
L. Zuoyi, W. Ke, L. Zhen, W. Xiang, L. Gengqi, and H. Zuoqi, Huazhong

TuD-14 Properties and structure of SmCoAISi-based trilayer for longitudinal recoding media
L. Zuoyi, W. Xiang, W. Ke, L. Zhen, C. Changbo, and L. Gengqi, Huazhong

TuD-15 Characterization of perpendicular recording media of CoPtCrO granular thin films
R. Sbiaa, E. Ahmad, T. Suzuki, A. Takeo and Y. Tanaka

TuD-16 Magnetic and magneto-optical properties for $(Co_{100-x}Fe_x)_{50}Pt_{50}$ alloy thin films
H. Kanazawa, G. Lauhoff, and T. Suzuki

TuD-17 Ultrafast magnetization reversal in GdFeCo induced by femtosecond Laser Pulses
J. Hohlfeld, M. Bilderbeek, T. Gerrits, Th. Rasing, H. Awano, and N. Ohta

TuD-18 Imaging due to magnetic anisotropy with hard X-rays
K. Sato, Y. Ueji, K. Okitsu, T. Matsushita, Y. Amemiya, J. Saito, and T. Takayama,

TuD-19 Temperature dependence of magneto-optical spectra in EuO epitaxial films
K. Hayata, N. Iwata, Y. Hasegawa, and K. Sato
TuD-20 Simulation of thermomagnetic recording using extended Huth's equation
N. Hashida, T. Kato, S. Iwata, and S. Tsunashima
TuD-21 CoNi/Pt interface roughness probed by nonlinear magneto-optics, X-ray scattering and AFM
K. Bal, A. Kirilyuk, M. A. M. Haast, J. C. Lodder, Y.Lou, K.S amwer and Th. Rasing,
TuD-22 Study of crystallization kinetics GeSbTeSeM (M=Cu, Co, Ni, Pb) phase change materials
C. Y. Wu, Y. D. Yao, Y. C. Juang, R. P. Chen and D. R. Huang
TuD-23 Exchange coupling in NiFe/NiMn bilayer and properties of NiMn-pinned spin valve
T. Yang, *W.Y. Lai, and T. Suzuki
TuD-24 The light intensity distributions in double layered MO disk for different polarized wave at various incident angles
Y. Zheng, A. Itoh, K. Nakagawa, and A. Tsukamoto
TuD-25 Signal-to-medium-noise ratio of CoPt/Cr longitudinal media improved by deposition of nucleation site layer and removal of adherent gas
R. Mukai and T. Uzumaki

NANOMETER RECORDING(NIGHT SESSION)

TuE-01 Ultra high density data storage (Invited)
L. Hesselink
TuE-02 Super-resolution near-field structure (Super-RENS) (Invited)
J. Tominaga, J. H. Kim, H. Fuji, T. Kikukawa, A. Sato, A. Tachibana, M. Kumagai, T. Nakano, T. Fukaya and N. Atoda
TuE-03 High density data storage materials perspective beyond 100 gigabits/in^2 (Invited)
D Weller, S. Sun, C. Murray, L. Folks, A. Moser
TuE-04 Over 100 Gb/lnch^2 magneto-optical recording (Invited)
A. Itoh, N Ohta, T. Uchiyama, A. Takahashi, M. Mieda, N. Iketani, Y. Uchihara, M. Nakata, K. Tezuka, H. Awano, S. Imai, and K. Nakagawa
TuE-05 Sub-100-nm-class magnetic domain formation on a flux-detectable RE-TM medium using a blue laser diode (Invited)
H. Saga, H. Nemoto, "Y. Itou, C. Haginoya, and H. Sukeda
TuE-06 Limit of thermally-assisted recording (Invited)
Jaap J. M. Ruigrok

Wednesday, November 1, 2000

MAGNETIC RECORDING

WeF-01 TbFeCo as a perpendicular magnetic recording material (Invited)
K. Ozaki, K. Matsumoto, A. Chekanov, I Tagawa and K. Shono
WeF-02 Experimental properties and micromagnetic simulation of superlattice magnetic recording media (Invited)
R. H. Victora, W. Peng, J. Xue, M. Khan, and J. H. Judy
WeF-03 Optically-assisted magnetic recording (Invited)
M. Alex, T. Valet, T. McDaniel, C. Brucker, and N. Deeman

MAGNETO-OPTICAL RECORDING

WeG-01 Towards 100 Gb/in^2 MO storage using a blue laser, high-NA Far-Field optics and domain-expansion media (Invited)
H. W. van Kesteren, Yu. V. Martynov, F. C. Penning, R. J. M. Vullers, M. A. H. van der Aa, C. A. Verschuren

WeG-02 iD photo, a new MO disk for digital still cameras (Invited)
S. Ohnuki, M. Yoshihiro, K. Shimazaki, and N. Isoe

WeG-03 20 Gbit/inch^2 recording on magneto-optical disk using NA 0.85 and 405 nm optics
T. Miki, A. Nakaoki, and M. Yamamoto

WeG-04 Crosstalk evaluation in laser-assisted magnetic recording using a blue laser
M. Hamamoto, K. Kojima, J. Sato, K. Watanabe, and H. Katayama

WeG-05 Thermomagnetically recorded domains in TbFeCo disks observed with high resolution magnetic transmission X-ray microscope
N. Takagi, H. Ishida, A. Yamaguchi, H. Noguchi, M. Kume, S. Tsunashima, M. Kumazawa and P. Fischer

RECORDING MATERIALS AND PHYSICS II

WeH-01 Micromagnetic simulation of wall motion for MAMMOS and DWDD (Invited)
Y. Nakatani and N. Hayashi

WeH-02 Low field anisotropic magnetostriction of single domain exchange-coupled (TbFe/Fe) multilayers: static and dynamical properties (Invited)
H. Le Gall, J. Ben Youssef, N. Tiercelin, V. Preobrazhensky and P. Pernod, Laboratoire de MagnCtisme de Bretagne

WeH-03 Exchange mechanisms in FM/Insulator/ FM and related structures (Invited)
C. H. Ho, M. -T. Lin, Y. D. Yao, S. F. Lee, Y. Liou and E. C. Kao

WeH-04 Magnetism and magneto-optics of MnBi nano-particles
D. Menzel, A. Borgschulte, M. Broschwitz, A. M. Carsteanu, and J. Schoenes

WeH-05 Magneto-optical polar and longitudinal KERR spectra of $NiFe_2O_4$ single-crystals
J. Mistrik, ViSoovsky, J. Ggobdilovh, N. Keller, M. Guyot and R. Krishnan

WeH-06 Magnetic properties and thermal stability in longitudinal magnetic recording media with stabilizing layer
R Sbiaa, E. N. Abarra, E. Ahmad, A. Lapicki and T. Suzuki

WeH-07 Spectroscopic investigation of Ago_x films for super resolution near-field structure
D. Biichel, J. Tominaga, T. Fukaya, N. Atoda

POSTER SESSION
MRS AND EXTENDIBILITY

Wel-01 Front aperture detection using magneto-static coupling
T. Kawano and A. Okamuro

Wel-02 Spatial resolution for MAMMOS readout
B.Van Rompaey, C.A. Verschuren, J.J.L. Horikx, H.W. van Kesteren, H. Awano, and N. Ohta,

Wel-03 Copied domain phenomena of MAMMOS media using blue laser and high NA objective lens
S. Imai, H. Awano, N. Ohta, N. Iketani, W. Nakata, K. Nakagawa, and A. Itoh

Wel-04 Performance of rear expansion detection magneto-optical media
K. Takahashi and S. Tsunashima

Wel-05 MAMMOS with DC magnetic field by using RE-rich readout magnetic layer
A. Yamaguchi, H. Ishida, H. Noguchi, K. Mitani, N. Takagi and M. Kume

Wel-06 Wall simulation for the domain wall displacement detection (I)
T. Kobayashi, M. Masuda, and T. Shiratori

Wel-07 Wall simulation for the domain wall displacement detection (II)
T. Kobayashi, M. Masuda, and T. Shiratori
Wel-08 Dynamic observation of domain speed in MAMMOS expanding layer
A. Itoh, M. Tanaka, M. Akiyama, T. Ishikawa, T. Seida, and K. Nakagawa
Wel-09 Super-resolution readout using a non-magnetic readout layer on a magneto-optical disk
H. Fuji, J. H. Kim, T. Shima, T. Nakano, D. Buechel, J. Tominaga, H. Katayama, and N. Atoda
Wel-10 Super-RENS effect of magneto-optical characteristics by non-magnetic mask layer
J. H. Kim, H. Fuji, T. Shima, Y. Yamakawa, T. Nakano, D. Buechel, J. Tominaga and N. Atoda
Wel-11 Control of magnetic exchange in coupled-bilayer films for high density readout process
R. Sbiaa, T. Suzuki and H. Le Gall

POSTER SESSION
RECORDING TECHNOLOGY AND DEVICES

WeJ-01 Near field solid immersion lens and magnetic field modulation for high MO recording density
R. Sbiaa, E. Stavrou, A. Chekanov, M. Birukawa, Y. Itoh and T. Suzuki
WeJ-02 Time dependent magnetization reversal in TbFeCo perpendicular magnetic recording media
A. Chekanov, K. Matsumoto, K. Ozaki
WeJ-03 Micro- and nano-scale measurement in data storage industry: a challenge task for surface analysis
Z. C. Jiang and H. Tian
WeJ-04 Performance improvement of spindle motor design for DVD drive
K. C. Chiu and D. R. Huang
WeJ-05 Fabrication of thin film optical waveguide for optical recording
S. Kuribayashi, A. Kuwamura, T. Kato, S. Iwata, S. Tsunashima
WeJ-06 A new multiple addressing method for high density video recorder using MO/PHASE change disk
I. Aoki

POSTER SESSION
POST-DEADLINE PAPERS

Thursday, November 2, 2000

NOVEL RECORDING TECHNOLOGY

ThL-01 Multilevel optical recording (Invited)
T. L. Wong and M. P. O'Neill
ThL-02 Segmented analog recording on phase change disk
N. Miyagawa and M. Mansuripur
ThL-03 Disc unique ID recording method on ROM type DVD disk BCA (burst cutting area)
M. Oshima, S. Tanaka and S. Kusumoto
ThL-04 Further advances in electron beam recording
G. Cartwright, C. Bayliss, *G.* Reynolds, A. Pearce, S. Swann, C. Dix, and N. Ogilvie

OPTICAL AND MAGNETIC DEVICES

ThM-01 A novel lensless optical floppy technology with high data rate (Invited)
K. Goto, Y. J. Kim, J. Yang, and Y. Hasegawa
ThM-02 An innovative three-axial actuator of high density optical pickup head (Invited)
D. R. Huang, M. F. Ho, C. L. Chang, L. D. Wei, C. Y. Ke, C. W. Chan and J. J. Ju

ThM-03 TOF-SIMS analysis: application to ultra-thin AWA film on magnetic head
Z. C. Jiang, Y. W. Liu, W. F. Chung, C. Y. Cheung and H. Tian
ThM-04 Effect of air gap on write and readout characteristics of magneto-optical media with solid immersion lens
H. Kawano, A. Chekanov, K. Matsumoto, K. Ozaki, R. Sbiaa, and T, Suzuki

PHASE CHANGE RECORDING

ThN-01 DVR: High density phase change recording through a 0.1 mm overcoat (Invited)
W. Leibbrandt
ThN-02 Physical characteristics of DVD-RW disk (Invited)
S. Taniguchi, E. Muramatsu, M. Kato, A. Yamaguchi, M. Matsukawa, S. Oshima, T. Tagiri, and T. Takishita
ThN-03 Super resolution and multivalue high density recording using multi-layer phase-change erasable media (Invited)
H. -P. D. Shieh
ThN-04 An approach to eliminate pre-crystallizing process from manufacturing of phase change optical recording media
S. Ashida, K. Yusu, N. Nakamura and K. Ichihara
ThN-05 Phase-change media based on the GeSbTeBiB system
C. M. Lee, R.-H. Liu and T.-S. Chin, W.-S. Yen

CLOSING ADDRESS
S. Tsunashima