PROGRAM

Sep. 11/Room A

Symposium "Magneto morphological control in material processing"

Chief Organizer: R. Aogaki (NIMS)

14:00 〜16:00 Chair: R. Aogaki (NIMS)

11pA-1 Magnetic field effects on crystallization by LLIP method (45 min.)
°I. Yamamoto[1], T. Okabe[1], M. Tatara[1], Y. Chiba[1], T. Onotou[1], N. Hirota[2] ([1]Yokohama National Univ., [2]NIMS)

11pA-2 Numerical simulation on structure formation of magnetic particles under magnetic fields (30 min.)
°T. Ando[1], D. Katayama[1], N. Hirota[2], O. Koike[3], R. Tatsumi[4], M. Yamato[5]
([1]Nihon Univ., [2]NIMS, [3]Product Innovation Association, [4]Univ. of Tokyo, [5]Tokyo Metropolitan Univ.)

11pA-3 Liquid Crystal Magneto-Electropolymerization (45 min.)
°H. Goto (Univ. of Tsukuba)

16:15 〜18:00 Chair: A. Sugiyama (Yoshino Denka Kogyo)

11pA-4 Composite Coatings Utilizing Magnetically Fixed Particles (30 min.)
°J. Sasano, T. Ebitani, T. Yamamoto, S. Yokoyama, M. Izaki (Toyohashi Univ. Tech.)

11pA-5 High Magnetic Field Effect on Copper Electrodeposition and Anodic Dissolution (30 min.)
°Y. Oshikiri[1], M. Miura[2], S. Takagi[3], T. Asada[3]
([1]Yamagata Coll. of Indust. Tech., [2]Hokkaido Polytechnic Coll., [3]Fukushima Univ.)

11pA-6 Concept and Procedure for the Synthesis of Uniform Nanoparticles in Liquid Phase with Large Quantity (45 min.)
°A. Muramatsu (Tohoku Univ.)

Sep. 11/Room B

Magnetic tunnel junction **10:45 〜12:15** Chair: M. Goto (Osaka Univ.)

11aB-1 Development of fully-epitaxial MTJs on an 8-inch Si wafer
°K. Yakushiji, A. Sugihara, S. Yuasa (AIST)

11aB-2 Large tunnel magnetoresistance effect in polycrystalline CoFeB/$MgAl_2O_4$/CoFeB magnetic tunnel junctions
Ikhtiar, °H. Sukegawa, X. Xu, M. Belmoubarik, H. Lee, S. Kasai, K. Hono (NIMS)

11aB-3 Bias voltage dependence of magnetoresistance ratio in Fe/$MgAl_2O_4$/Fe junction: First-principles theoretical approach
°K. Masuda, Y. Miura (NIMS)

11aB-4 Voltage-induced Magnetocapacitance Effect in Magnetic Tunnel Junctions
°H. Kaiju[1], T. Misawa[1], T. Nagahama[1], T. Komine[2], O. Kitakami[3], M. Fujioka[1], J. Nishii[1], G. Xiao[4]
([1]Hokkaido Univ., [2]Ibaraki Univ., [3]Tohoku Univ., [4]Brown Univ.)

11aB-5 Response of pulse input in spin torque oscillator
°D. Suzuki[1, 2], S. Tsunegi[2], K. Yakushiji[2], A. Fukushima[2], S. Yuasa[2], Y. Yasukawa[1], H. Kubota[2] ([1]Chiba Inst. Tech., [2]AIST)

11aB-6 Effect of interface modification on electrical synchronization in spin torque oscillator
°T. Ando[1], D. Suzuki[1], S. Tsunegi[2], K. Yakushiji[2], A. Fukushima[2], S. Yuasa[2], Y. Yasukawa[1], H. Kubota[2]
([1]Chiba Inst. Tech., [2]AIST)

Energy harvesting, nano magnetism **15:45 〜17:00** Chair: S. Nakagawa (Tokyo Inst. Tech.)

11pB-1 Energy Harvesting Based on Stress Induced Domain Wall Motion in Soft Magnetic Microwires (Invited, 30min.)
°S. N. Piramanayagam[1], S. Bhatti[1], C. Ma[2], X. X. Liu[2] ([1]Nanyang Tech. Univ., [2]Shinshu Univ.)

11pB-2 Visualization of Anomalous Ettingshausen Effect in an FePt thin film
°T. Seki[1, 2], R. Iguchi[2], K. Takanashi[1], K. Uchida[1, 2] ([1]Tohoku Univ., [2]NIMS)

11pB-3 Computer simulations of a Skyrmion motion in a racetrack

°K. Migita[1], K. Yamada[2], Y. Nakatani[1] ([1]UEC, [2]Gifu Univ.)

11pB-4 Short term memory and non-linearly in nanomagnet recurrent neural network

°Y. Kuwabiraki, H. Nomura, T. Furuta, Y. Suzuki, R. Nakatani (Osaka Univ.)

Sep. 11/Room C

Symposium "Microwave-assisted magnetic recording and its application for 3D magnetic recording"

Chief Organizer: R. Sato (Toshiba)

10:15 〜12:15 Chair: S. Okamoto (Tohoku Univ.)

11aC-1 Selective resonance reading from double-layer recording magnetization using a spin-torque oscillator (30 min.)

°T. Kanao, H. Suto, K. Mizushima, R. Sato (Toshiba)

11aC-2 Signal processing for STO reading in three dimensional magnetic recording (30 min.)

°Y. Nakamura[1], M. Nishikawa[1], Y. Okamoto[1], T. Kanao[2], R. Sato[2] ([1]Ehime Univ., [2]Toshiba)

11aC-3 Microwave assisted magnetic recording on media with multiple, discrete recording layers (30 min.)

°S. J. Greaves[1], Y. Kanai[2], H. Muraoka[1] ([1]Tohoku Univ., [2]Niigata Inst. Tech.)

11aC-4 Theory of Microwave Assisted Magnetization Reversal (30 min.)

°T. Taniguchi (AIST)

14:00 〜15:30 Chair: H. Kubota (AIST)

11pC-1 Design and development of all-in-plane spin-torque-oscillator for microwave assisted magnetic recording (30 min.)

°H. Sepehri-Amin, W. Zhou, S. Bosu, Y. Sakuraba, S. Kasai, K. Hono (NIMS)

11pC-2 Microwave assisted switching on CoCrPt based granular media (30 min.)

°N. Kikuchi, K. Shimada, S. Kikuchi, K. Sato, S. Okamoto, O. Kitakami, T. Shimatsu (Tohoku Univ.)

11pC-3 Microwave-Field-Induced Magnetization Excitation and Magnetization Switching of an Antiferromagnetically Coupled Magnetic Bilayer with Perpendicular Magnetization (30 min.)

°H. Suto, T. Kanao, T. Nagasawa, K. Mizushima, R. Sato (Toshiba)

Sep. 11/Poster Room

Poster presentation (magnetism of materials, magnetic recording, spin electronics, and thin films)

Chair: K. Nakada (TDK)

13:00 〜15:00

11pPS-1 Synthesis of La doped Iron-Based superconductor mother compound CaFeAsF

°R. Koshimizu, K. Kaneyasu, M. Yamaguchi, Y. Kamihara (Keio Univ.)

11pPS-2 Evaluation of superconducting round wires and tapes using iron-based superconductor $Sr_2VFeAsO_{3-}\delta$

°S. Iwasaki[1], Y. Takano[2], M. Matoba[1], Y. Kamihara[1] ([1]Keio Univ., [2]NIMS)

11pPS-3 Synthesis and transport properties of Iron-based 21113 compounds Sr_2*TM*$FeAsO_{3-}\delta$

°M. Yamaguchi[1], H. Fujioka[1], T. Otsuka[1], M. Seto[2], S. Kitao[2], M. Matoba[1], Y. Kamihara[1] ([1]Keio Univ., [2]Kyoto Univ.)

11pPS-4 Analysis of magnetic properties for two dimensional Kondo lattice $CeFe\rho_{1-x}Cr_x$

°K. Ando[1], S. Taninaka[1], K. Ida[1], K. Kindo[2], Y. Kohama[2], M. Matoba[1], Y. Kamihara[1] ([1]Keio Univ., [2]Univ. of Tokyo)

11pPS-5 Synthesizing and verifying the function of $YBa_2Cu_3O_{7-\delta}$ micro-wire with biotemplate.

°T. Iwatake, A. Murata, Y. Matsumoto, M. Matoba, Y. Kamihara (Keio Univ.)

11pPS-6 Majorana Bound States in Topological Superconductor with Ferromagnetic Nanowaire including Domain Wall

°M. Ichimura[1], M. Hirokawa[2] ([1]Hitachi, [2]Hiroshima Univ.)

11pPS-7 Analyzing magnetic domain structure using persistent homology

°T. Yamada[1, 3], S. Suzuki[1], Y. Suzuki[1, 6], T. Ueno[5], C. Mitsumata[3], K. Ono[6], I. Obayashi[2], K. Akagi[2, 3], Y. Hiraoka[2, 3, 4], M. Kotsugi[1, 3] ([1]Tokyo Univ. Sci., [2]Tohoku Univ., [3]NIMS, [4]RIKEN, [5]QST, [6]KEK)

11pPS-8 Effect of post-annealing on the magnetic properties and magnetic domain structure of FePt/ Fe nano-composite films

°T. Sato, K. Ohwada, M. Doi, T. Shima (Tohoku Gakuin Univ.)

11pPS-9 Characterization and preparation of $Sm_{0.5}Bi_{2.5}Fe_5O_{12}$ thin films by metal organic decomposition (MOD) method
°R. Urakawa[1], T. Yamamoto[1], G. Lou[1], M. Nishikawa[1], M. Kawahara[2], T. Ishibashi[1] ([1]Nagaoka Univ. Tech., [2]Kojundo)

11pPS-10 Characterization of $Pr_{0.5}Bi_{2.5}Fe_5O_{12}$ thin films prepared by metal organic decomposition method
°T. Fujieda[1], Y. Kimura[1], G. Lou[1], M. Nishikawa[1], M. Kawahara[2], T. Ishibashi[1] ([1]Nagaoka Univ. Tech., [2]Kojundo)

11pPS-11 FDTD simulation of optical and magnetooptical response for composite structure with rectangularly arranged Au particles/Bi:YIG
°Y. Itabashi[1], J. Schlipf[1, 2], K. Ooki[3], S. Saito[3], T. Goto[1, 4], Y. Nakamura[1], P. B. Lim[1], I. Fischer[2], J. Schulze[2], H. Uchida[1], M. Inoue[1] ([1]Toyohashi Univ. Tech., [2]University of Stuttgart, [3]Tohoku Univ., [4]JST-PREST)

11pPS-12 Magneto-optical properties and plasmonics on CoPt–Ag perpendicular magnetic nanostructures
°H. Yamane[1], Y. Yasukawa[2], K. Takeda[2], Y. Isaji[2], M. Kobayashi[2] ([1]AIT, [2]Chiba Inst. Tech.)

11pPS-13 Substrate temperature dependence of perpendicular magnetic anisotropy of Co_2FeSi/MgO multilayers
°Y. Stutler, E. Matsushita, Y. Takamura, S. Nakagawa (Tokyo Inst. Tech.)

11pPS-14 Perpendicular magnetic anisotropy and the crystal structure of C38-type MnGaGe films
M. Sun[1], °T. Kubota[1], Y. Kawato[2], Y. Sonobe[2], K. Takanashi[1] ([1]Tohoku Univ., [2]Samsung Research Inst. Jpn.)

11pPS-15 Spin current generation via spin vorticity coupling using Cu and Pt
°Y. Kurimune, Y. Nozaki (Keio Univ.)

11pPS-16 Spin Current Generation Using an Interface between Weak SOI Materials
°T. Horaguchi, Y. Nozaki (Keio Univ.)

11pPS-17 Spin current generation using non-uniform spin dependent scattering in surface acoustic waves
°A. Yamamoto, Y. Nozaki (Keio Univ.)

11pPS-18 Effect of size and reference layer's thickness on thermal stability of p-MTJ
°T. Tanaka[1], C. Yoshida[1], A. Furuya[1], Y. Uehara[1], K. Shimizu[1], J. Fujisaki[1], T. Ataka[1], H. Shitara[1], T. Hirahara[1], H. Oshima[2] ([1]Fujitsu, [2]Fujitsu Labs.)

11pPS-19 Spin-Orbit Torque in rare earth–transition metal Ferrimagnet/4f-metal Heterostructures
°Y. Kasatani[1, 3], H. Yoshikawa[1], Y. Futakawa[2], A. Tsukamoto[1] ([1]College of Science and Technology, Nihon Univ., [2]Graduate School of Science and Technology, Nihon Univ., [3]JSPS)

11pPS-20 Dynamical Modulation of Magnetic Vortex in Nanostrips Using Interfacial Dzyaloshinskii-Moriya Interaction
°Y. Goto, Y. Nozaki (Keio Univ.)

11pPS-21 Characterization of Spin Hall Torque Acting on Antiferromagnetic Structures
°H. Masuda, T. Seki, T. Kubota, K. Takanashi (Tohoku Univ.)

11pPS-22 Experiment on Generation of Spin-Motive Force Using Surface Acoustic Waves
°S. Negami, Y. Nozaki (Keio Univ.)

11pPS-23 Magnetic anisotropy of negative giant magnetostrictive $SmFe_2$ ultrathin films
°H. Onozawa, R. Kitagawa, Y. Takamura, S. Nakagawa (Tokyo Inst. Tech.)

11pPS-24 Intergranular exchange decoupling of CoPt-B_2O_3 granular media by introducing RuCoCr-oxide buffer layer
°K. K. Tham[1], R. Kushibiki[1], T. Kamada[1], S. Saito[2] ([1]TANAKA, [2]Tohoku Univ.)

11pPS-25 Morphological control and magnetic properties of $L1_0$ FePt thin films by added elements
°K. Ishida, M. Doi, T. Shima (Tohoku Gakuin Univ.)

11pPS-26 Property of microwave-assisted magnetization switching in exchange-coupled composite films
°H. Tatsuno[1], S. Suzuki[1], S. Kasai[2], Y. Nozaki[1] ([1]Keio Univ., [2]NIMS)

11pPS-27 Time-resolved measurement on nonlinear magnetization dynamics using sub-nanosecond wide inpulse field
°N. Kitajima, G. Okano, Y. Nozaki (Keio Univ.)

11pPS-28 Laser-induced propagating spin wave in synthetic antiferromagnets
°A. Kamimaki, S. Iihama, K. Z. Suzuki, S. Mizukami (Tohoku Univ.)

11pPS-29 Influence of Surface Oxidized Si Layer Thickness on Substrate for Current-driven Domain Wall Motion in [Co/Tb] Nanowire
°M. Okuda, M. Kawana, N. Ishii, Y. Miyamoto (NHK)

11pPS-30 Large perpendicular magnetic anisotropy in sputter-deposited $Fe_{100-x}Al_x/MgAl_2O_4$ heterostructures
T. Scheike, °H. Sukegawa, X. Xu, T. Ohkubo, K. Hono, S. Mitani (NIMS)

11pPS-31 Relationship between magnetoresistance effect and crystal orientation of ferromagnetic-metal in oxide/ferromagnet heterostructure

°S. Isogami[1], J. Uzuhashi[1], T. Ohkubo[1], M. Hayashi[1, 2] ([1]NIMS, [2]Univ. of Tokyo)

Sep. 12/Room A

Symposium "Biomagnetics: breakthrough and commercialization"

Chief Organizer: Y. Takemura (Yokohama National Univ.)

10:45 〜11:45 Chair: Y. Takemura (Yokohama National Univ.)

12aA-1 Magnetocardiogram measurement using SQUID magnetometer and Magneto-Impedance sensor (30 min.)

°K. Kobayashi[1], M. Iwai[1], T. Tanaka[2], Y. Hata[2], Y. Ogata[2], B. Kakinuma[2] ([1]Iwate Univ., [2]Advantest Laboratories)

12aA-2 Recent progress of biomagnetic field sensors with ferromagetic tunnel junctions (30 min.)

°Y. Ando (Tohoku Univ.)

13:00 〜14:30 Chair: Y. Takemura (Yokohama National Univ.)

12pA-1 Evaluation of harmonic magnetization properties of clinical magnetic nanoparticles for magnetic particle imaging (30 min.)

°T. Yoshida[1], S. Ota[2], T. Nakamura[1], R. Takeda[3], Y. Takemura[3], I. Kato[4], S. Nohara[4], K. Enpuku[1]

([1]Kyushu Univ., [2]Shizuoka Univ., [3]Yokohama National Univ., [4]Meito Sangyo)

12pA-2 Sentinel lymph node biopsy using magnetic nanoparticles and magnetic probe (30 min.)

°M. Kusakabe[1], H. Takei[2], S. Nakamura[3], M. Sekino[1] ([1]Univ. of Tokyo, [2]Nippon Med. Sch., [3]Showa Univ.)

12pA-3 Development of transcranial magnetic stimulator for treatments of neurological and psychiatric diseases at home (30 min.)

°M. Sekino[1], K. Hosomi[2], Y. Saitoh[2] ([1]Univ. of Tokyo, [2]Osaka Univ.)

Sep. 12/Room B

Magnetic Recording Media **9:00 〜10:30** Chair: N. Kikuchi (Tohoku Univ.)

12aB-1 In-plane components of FePt nanogranular films on MgO underlayer with and without carbon segregant

°J. Wang, Y. K. Takahashi, K. Hono (NIMS)

12aB-2 Change in grain density of FePt-based granular thin films with film growth process

°I. Suzuki, J. Wang, Y. K. Takahashi, K. Hono (NIMS)

12aB-3 Proposal of network-formed upheaval structure using grain boundary diffusion in underlayer for $L1_0$ FePt-based granular media with columnar nanostructure

°A. Shimizu, S. Hinata, S. Jo, S. Saito (Tohoku Univ.)

12aB-4 Order alloying of microfabricated Pt/ Fe stacked dots by Rapid Thermal Annealing

°T. Naeki, K. Miyoshi, H. Yoshikawa, A. Tsukamoto (Nihon Univ.)

12aB-5 Fabrication of (001) oriented MnGa film on Si substrate for application to bit patterned media

°Y. Miwa, T. Ishikawa, D. Oshima, T. Kato, S. Iwata (Nagoya Univ.)

12aB-6 Magnetical patterning of $L1_0$-MnGa ultrathin film on CoGa buffer layer

°Y. Horie, Y. Miwa, D. Oshima, T. Kato, S. Iwata (Nagoya Univ.)

Magnetic Recording (assisted recording, AOS) **13:00 〜14:30** Chair: H. Suto (Toshiba)

12pB-1 Writing field sensitivity in heat-assisted magnetic recording

°K. Honma[1], Y. Nakatani[2], T. Kobayashi[1], Y. Fujiwara[1] ([1]Mie Univ., [2]UEC)

12pB-2 Development of compact and convenient HAMR evaluation equipment

°K. Akahane[1], S. Meguro[2], S. Saito[1] ([1]Tohoku Univ., [2]NEOARK)

12pB-3 Microwave assisted magnetization switching experiments with continuous rf wave on CoCrPt granular media

°K. Sato, N. Kikuchi, S. Okamoto, O. Kitakami, T. Shimatsu (Tohoku Univ.)

12pB-4 Effective time dependence of microwave assisted switching effect for CoCrPt granular media

°S. Kikuchi, T. Shimatsu, N. Kikuchi, S. Okamoto, O. Kitakami (Tohoku Univ.)

12pB-5 Micro-magnetic Analysis for PMR Write-head energized on Main-pole Tip

°Y. Nakamura[1], R. Itagaki[2], Y. Kanai[2] ([1]Tohoku Univ., [2]Niigata Inst. Tech.)

12pB-6 All -optical magnetization switching in GdFeCo with the additional layers for suppressing the magnetic thickness dependency

°T. Iisaka, H. Yoshikawa, Y. Futakawa, A. Tsukamoto (Nihon Univ.)

Sep. 12/Room C

Symposium "Frontiers of spin-orbitronics" Chief Organizer: T. Ono (Kyoto Univ.)

10:45 〜12:15 Chair: T. Ono (Kyoto Univ.)

12aC-1 Perspective of spin-orbitronics (30 min.)

°J. Nitta (Tohoku Univ.)

12aC-2 Spin-charge interconversion in topological surface states (30 min.)

°Y. Ando, M. Shiraishi (Kyoto Univ.)

12aC-3 Current induced torque in spin orbit materials (30 min.)

°M. Hayashi (Univ. of Tokyo, NIMS)

13:00 〜14:30 Chair: Y. Ando (Kyoto Univ.)

12pC-1 Oxide spin-orbitronics (30 min.)

°J. Matsuno (Osaka Univ., JST-PREST)

12pC-2 Magnetization control and detection of antiferromagnetic NiO (30 min.)

°T. Moriyama, K. Oda, T. Ikebuchi, T. Ono (Kyoto Univ.)

12pC-3 Analog spin-orbit torque switching for neuromorphic application (30 min.)

°W. A. Borders, S. Fukami, H. Ohno (Tohoku Univ.)

Sep. 12/Room D

Magnetic imaging **9:30 〜10:30** Chair: T. Sasayama (Kyushu Univ.)

12aD-1 Fabrication of high-susceptibility superparamagnetic Co-GdO_x granular alloy films for developing the sensitive alternating magnetic force microscopy tip

°Y. Suzuki, Y. Cao, P. Kumar, Y. Zhao, S. Yoshimura, H. Saito (Akita Univ.)

12aD-2 Theory of high-resolution magnetic field imaging of the magnetic recording head by A-MFM with superparamagnetic tip

P. Kumar, Y. Suzuki, Y. Cao, S. Yoshimura, °H. Saito (Akita Univ.)

12aD-3 High-resolution magnetic field energy imaging of the magnetic recording head by A-MFM with Co-GdO_x superparamagnetic tip

P. Kumar, Y. Suzuki, Y. Cao, S. Yoshimura, °H. Saito (Akita Univ.)

12aD-4 Development of high resolution magneto-optical Kerr microscope

°T. Ogasawara (AIST)

Non-destractive inspection **13:15 〜14:15** Chair: S. Yoshimura (Akita Univ.)

12pD-1 Detection of Cracks in Steel Structures Using Multi-Channel Magnetic Resistive Sensors

°M. Hayashi, Y. Nakamura, K. Sakai, T. Kiwa, K. Tsukada (Okayama Univ.)

12pD-2 Detection of micro defects of metal materials using tunnel magnetoresistive sensors

°T. Kobara[1], K. Sakai[1], T. Kiwa[1], K. Tsukada[1], Y. Suzuki[2] ([1]Okayama Univ., [2]Kobe Steel)

12pD-3 Frequency dependence of low-frequency eddy-current testing for detecting cracks on the backside of steel plate

°W. Yoshimura, T. Sasayama, K. Enpuku (Kyushu Univ.)

12pD-4 Evaluation of physical properties in local area of deteriorated carbon steel material

°Y. Morii[1], K. Terashima[1], T. Takase[1], K. Yamaguchi[1], T. Uchimoto[2], T. Takagi[2] ([1]Fukushima Univ., [2]Tohoku Univ.)

Sep. 12/Poster Room

Poster presentation (soft/hard magnetic materials, mesoscopic/mechanical devices, and power magnetics)

Chair: Y. Kamihara (Keio Univ.)

10:00 〜12:00

12aPS-32 Influence of additive elements on magnetic properties of CoFeSiB films

M. Jimbo[1], S. Nozue[2], °Y. Fujiwara[2] ([1]Daido Univ., [2]Mie Univ.)

12aPS-33 Iron Loss Characteristics of Nanocrystal Reactor Core of Road High Frequency Excitation

°K. Tsukada[1], K. Fujisaki[1], Y. Shindo[2], N. Yoshikawa[2], T. Yoshitake[2] ([1]Toyota Tech. Inst., [2]Kawasaki)

12aPS-34 Effect of additive elements on the structure and magnetic properties for MnAl thin films

°R. Akama, M. Doi, T. Shima (Tohoku Gakuin Univ.)

12aPS-35 Effect of nitrogen content on the crystal structures and magnetic properties for Mn-Ga-N thin films

°F. Nakagawa, M. Doi, T. Shima (Tohoku Gakuin Univ.)

12aPS-36 Increase in thickness of Nd-Fe-B film magnets prepared on Si substrates

°Y. Yamaguchi, M. Nakano, T. Yamaguchi, K. Shimoda, A. Yamashita, T. Yanai, H. Fukunaga (Nagasaki Univ.)

12aPS-37 Magnetic properties of $Ce(Co_{1-x}Cu_x)_5$ films with non-continuous change in crystal lattice

°W. Koganoki[1], Y. Takamura[1], S. Nakagawa[1], K. Ohashi[2] ([1]Tokyo Inst. Tech., [2]ShinEtsu)

12aPS-38 Realization of high coercive Nd-Fe-B thin films by the diffusion of alloy layers

°Y. Tamazawa, M. Doi, T. Shima (Tohoku Gakuin Univ.)

12aPS-39 Effect of Co-substitution for $Sm(Fe, Co)_{12}$ thin films and their magnetic properties

°G. Saito, M. Doi, T. Shima (Tohoku Gakuin Univ.)

12aPS-40 Mangetic anisotropy of tetragonally distorted $Cu_{1-x}Co_xFe_2O_4$

°H. Latiff, R. Shigesawa, M. Kishimoto, E. Kita, H. Yanagihara (Univ. of Tsukuba)

12aPS-41 Effect of particle shape on magnetic first-order reversal curves for Fe_3O_4 nanoparticles

°T. Watari[1], K. Sugawara[1], S. Kobayashi[1], T. Murakami[1], M. Chiba[1], J. Manjanna[2] ([1]Iwate Univ., [2]Rani・Channamma)

12aPS-42 Control of epitaxial strain and magnetic anisotropy in cobalt-ferrite thin films on Mg_2SnO_4

°H. Onoda[1], J. Inoue[1], H. Sukegawa[2], S. Sonia[1], H. Yanagihara[1] ([1]Univ. of Tsukuba, [2]NIMS)

12aPS-43 Fabrication of bismuth iron garnet films by MOD method and their magneto-plasmonic effect

°T. Harada, Y. Ashizawa, K. Nakagawa (Nihon Univ.)

12aPS-44 Magnetostriction of Soft Magnetic Ni-Based Alloy Single-Crystal Thin Films

°K. Serizawa[1,2], T. Kawai[1], M. Ohtake[1], M. Futamoto[2], F. Kirino[3], N. Inaba[4]

([1]Yokohama National Univ., [2]Chuo Univ., [3]Tokyo Univ. of Arts, [4]Yamagata Univ.)

12aPS-45 First-principles calculations of Ru-doping effect on magnetic anisotropy and Curie temperature in $L1_0$-type FePt

°Y. Kota (Fukushima Nat. Coll. Tech.)

12aPS-46 Magnetic first-order reversal curve for hollow magnetite fine particles

°M. Chiba[1], S. Kobayashi[1], T. Murakami[1], J. Manjanna[2] ([1]Iwate Univ., [2]Rani Channamma Univ.)

12aPS-47 Micromagnetics simulation of magnetic domain formation in magnetic nanowire in various recording element shapes

°M. Kawana, M. Okuda, N. Ishii, Y. Miyamoto (NHK)

12aPS-48 Influence of heat treatments on the formation of hexagonal-structural ferrites through an metal-organic decomposition method

°S. Kudo, K. Sekidera, Y. Yasukawa (Chiba Inst. Tech.)

12aPS-49 Vector network analyzer ferromagnetic resonance spectrometer with field differential detection

°S. Tamaru, S. Tsunegi, H. Kubota, S. Yuasa (AIST)

12aPS-50 Valve mechanism for gasoline engine with linear motor (Fundamental consideration using electromagnetic field analysis)

°Y. Sato, H. Kato, T. Narita (Tokai Univ.)

12aPS-51 Active seat for ultra-compact mobility with voice coil motor (Fundamental consideration on design method of motors considering control of vibration)

°A. Endo, K. Ikeda, R. Minowa, H. Kato, T. Narita (Tokai Univ.)

12aPS-52 Electromagnetic levitation system for flexible steel plate using magnetic field from horizontal direction (Fundamental consideration on levitation of metal foil)

°Y. Oda, Y. Ito, K. Okuno, T. Narita, H. Kato (Tokai Univ.)

12aPS-53 Space elevator climber using linear induction motor (Fundamental consideration on thrust characteristics)

°T. Bessho, S. Ishihara, Y. Narawa, R. Yamaguti, T. Narita, H. Kato (Tokai Univ.)

12aPS-54 Bending levitation control for flexible steel plate (Experimental consideration on levitation performance under disturbance)

°K. Ogawa, M. Tada, T. Narita, H. Kato (Tokai Univ.)

12aPS-55 Performance improvement of magnetically driven micro-pumps for liquid cooling system

°R. Urabe, H. Yamada, T. Honda (Kyushu Inst. Tech.)

12aPS-56 Magnetically driven biopsy mechanisms incorporated into capsule-type medical device

°T. Matsui, T. Honda (Kyushu Inst. Tech.)

12aPS-57 Development of magnetically driven drug release mechanism for capsule medical device

°Y. Tominaga, T. Honda (Kyushu Inst. Tech.)

12aPS-58 GMR Magnetic Strain Sensor using modulation of FeSiB free-layer magnetization direction

°K. Yasuda, Y. Hashimoto, T. Kato, D. Oshima, S. Iwata (Nagoya Univ.)

12aPS-59 10-GHz soft magnetic property of Co-SiO_2 nano-granular film with large perpendicular magnetic anisotropy

°H. Aoki[1], S. Takeda[2], S. Ohnuma[3], H. Masumoto[1] ([1]Tohoku Univ., [2]KEYCOM, [3]DENJIKEN)

12aPS-60 Reconstruction of 3D image using magneto-optic hologram written by micro-lens array

°Y. Kimura[1], T. Goto[1, 2], Y. Nakamura[1], P. B. Lim[1], H. Uchida[1], M. Inoue[1] ([1]Toyohashi Univ. Tech., [2]JST-PREST)

12aPS-61 Design of film structure for a fiber type magnetic sensor using magneto-plasmonic effect

°A. Nakayama, R. Sotoyama, Y. Ashizawa, K. Nakagawa (Nihon Univ.)

Sep. 13/Room A

Magnetic compounds **9:15 〜10:30** Chair: S. Mizukami (Tohoku Univ.)

13aA-1 Magnetic properties of H_2O bridged one-dimensional metal complexes

°N. Nomoto[1], T. Fujihara[1], Y. Sawada[2], T. Kida[2], M. Hagiwara[2], N. Kamata[1], Z. Honda[1] ([1]Saitama Univ., [2]Osaka Univ.)

13aA-2 Ab initio study on magnetic phase of a superconducting layered compound, $Sr_2VFeAsO_{3-\delta}$

Y. Tojo, M. Nakanishi, °Y. Kamihara (Keio Univ.)

13aA-3 Synthesis and magnetic properties of $Me^{2+}Ti^{4+}$ substituted $Ba_{12}Fe_{28}Ti_{15}O_{84}$

°N. Yasuda, K. Kakizaki, K. Kamishima (Saitama Univ.)

13aA-4 Magnetoelectric effect on $CoFe_2O_4$/Pb[Zr,Ti]O_3 multi-layered thin films

°S. Nakao, K. Kamishima, K. Kakizaki (Saitama Univ.)

13aA-5 Fabrication of highly qualified $(Bi_{1-x}La_x)(Fe,Co)O_3$ multiferroic thin films by using a pulsed DC reactive sputtering method and its magnetic and dielectric properties

M. Kuppan[1], D. Yamamoto[1], °S. Yoshimura[1, 2] ([1]Akita Univ., [2]JST-PREST)

Magneto-optics **10:45 〜12:00** Chair: H. Uchida (Toyohashi Univ. Tech.)

13aA-6 Condition of surface plasmon resonance in near-infrared region for magnetic multilayer film

°S. Saito[1], K. Ooki[1], K. Akahane[1], H. Uchida[2] ([1]Tohoku Univ., [2]Toyohashi Univ. Tech.)

13aA-7 Enhancement of NIR magneto-refractive effect for Co/Ru multilayer film by surface plasmon resonance

°S. Saito[1], K. Ooki[1], K. Akahane[1], H. Uchida[2] ([1]Tohoku Univ., [2]Toyohashi Univ. Tech.)

13aA-8 Accurate measurement of Faraday effect of CeF_3 single crystal in the direction perpendicular to its optic axis

K. Nakagawa, K. Zhang, °T. Asahi (Waseda Univ.)

13aA-9 Preparation and characterization of $R_{0.5}Bi_{2.5}Fe_5O_{12}$ (R=Eu, Sm, Pr) thin films.

°M. Nishikawa[1], H. Aiba[1], R. Urakawa[1], Y. Kimura[1], T. Fujieda[1], T. Yamamoto[1], G. Lou[1], M. Kawahara[2], T. Ishibashi[1] ([1]Nagaoka Univ. Tech., [2]Kojundo)

13aA-10 Evaluation of magneto-optical properties of $(Bi_{1-x}La_x)(Fe,Co)O_3$ thin films for the measurement of electromagnetic effect of multiferroic thin films

°S. Yoshimura (Akita Univ., JST-PREST)

Symposium "Perspective of ultra-high-sensitive magnetic sensors"

Chief Organizer: Y. Ando (Tohoku Univ.)

13:00 〜14:45 Chair: Y. Ando (Tohoku Univ.)

13pA-1 Application of MEMS Magnetic Sensors for MedTech Innovation (45 min.)

°J. Lu, R. Maeda (AIST)

13pA-2 Development of high-sensitive and wide-range linear magnetic field sensor (30 min.)

°M. Masuda[1], Y. Moriyasu[1], Y. Ando[2] ([1]AsahiKASEI Electronics, [2]Tohoku Univ.)

13pA-3 Magnetic Sensors for Automobile (30 min.)

°T. Furuichi[1], M. Yoshimura[1], R. Abe[1], M. Makita[1], M. Oogane[2], T. Nakano[2], T. Ogasawara[2], M. Tsunoda[2], Y. Ando[2]
([1]DENSO, [2]Tohoku Univ.)

15:00 〜16:30 Chair: H. Iwasaki (JRIA)

13pA-4 A multi-channel SQUID system for biomagnetic measurements (30 min.)

°Y. Adachi[1], S. Kawabata[2] ([1]Kanazawa Inst. Tech., [2]Tokyo Med. Dent. Univ.)

13pA-5 Recent developments on magnetoimpedance sensor (30 min.)

°T. Uchiyama (Nagoya Univ.)

13pA-6 Measurement of Magnetoencephalography and Magnetocardiography using Tunnel Magneto-Resistance Sensor (30 min.)

°K. Fujiwara[1], M. Oogane[1], A. Kanno[1], M. Imada[2], J. Jono[2], T. Terauchi[2], T. Okuno[2], Y. Aritomi[2], K. Hashimoto[2], M. Morikawa[2], M. Tsuchida[2], N. Nakasato[1], Y. Ando[1] ([1]Tohoku Univ., [2]Konicaminolta)

16:45 〜17:45 Chair: H. Kubota (AIST)

13pA-7 Optically Pumped Atomic Magnetometers: Perspectives for New Optical Biomagnetic Imaging Systems (30 min.)

°T. Kobayashi (Kyoto Univ.)

13pA-8 Possibilities of Diamond Quantum Sensors (30 min.)

°M. Hatano, T. Iwasaki (Tokyo Inst. Tech.)

Sep. 13/Room B

Heusler alloy **9:00 〜10:30** Chair: T. Kubota (Tohoku Univ.)

13aB-1 Half-metallic properties in Co_2MnSi thin film grown by molecular beam epitaxy

°M. Oogane[1], A. P. Mcfadden[2], K. Fukuda[1], M. Tsunoda[1], Y. Ando[1], C. Palmstrøm[2]
([1]Tohoku Univ., [2]University of California)

13aB-2 Analysis of microstructure and transport properties in Mn_2CoAl Heusler alloy

°Z. Chen, X. Xu, Y. Sakuraba, W. Zhou, J. Wang, T. Natakani, K. Hono (NIMS)

13aB-3 Atomic configuration and electronic state for CoVMnAl alloy

°R. Y. Umetsu[1], T. Fukushima[2], K. Saito[3], K. Ono[3], F. Kuroda[2], T. Oguchi[2], T. Ishigaki[4]
([1]Tohoku Univ., [2]Osaka Univ., [3]KEK, [4]Ibaraki Univ.)

13aB-4 Large MR ratio in epitaxial $Co_{50}Fe_{50}$/Cu/$Co_{50}Fe_{50}$ current-in-plane giant magnetoresistive devices

°K. B. Fathoni[1,2], Y. Sakuraba[1], T. Sasaki[1], T. Nakatani[1], K. Hono[1] ([1]NIMS, [2]Univ. of Tsukuba)

13aB-5 Magnetic and magnetotransport properties of CoFeVSi epitaxial films

°S. Kobayashi, S. Yamada, K. Hamaya (Osaka Univ.)

13aB-6 Bulk and near-interface magnetic properties of $Co_2Fe(Ga_{0.5}Ge_{0.5})$ Heusler alloy explored by magnetic circular dichroism in hard x-ray photoelectron spectroscopy

°J. Jung[1], Y. Sakuraba[1], T. Sasaki[1], Y. Miura[1], A. Yasui[2], R. Kumara[2], T. Nakatani[1], K. Hono[1] ([1]NIMS, [2]JASRI/SPring-8)

Heusler alloy・Magnetoresistance effect **10:45 〜12:00** Chair: R. Y. Umetsu (Tohoku Univ.)

13aB-7 CPP-GMR devices using Heusler alloy and AgInZnO spacer layer

°T. Nakatani, T. Sasaki, Y. Sakuraba, K. Hono (NIMS)

13aB-8 CPP-GMR devices using $C1_b$-type half Heusler alloys

°Z. Wen, T. Kubota, K. Takanashi (Tohoku Univ.)

13aB-9 Interface layer effects for Heusler alloy based CPP-GMR junctions

°T. Kubota, Z. Wen, K. Takanashi (Tohoku Univ.)

13aB-10 Spin Hall Magnetoresistance effect in $CoFe_2O_4$/Pt/$CoFe_2O_4$ trilayers

T. Yamamoto, S. Nodo, T. Yanase, T. Shimada, °T. Nagahama (Hokkaido Univ.)

13aB-11 Origin of bi-quadratic interlayer exchange coupling in Co_2MnSi-based current-perpendicular-to-plane spin valves

°T. Tanimoto[1], K. Inubushi[2], D. Mouri[1], M. Inoue[1], K. Nakada[2], M. Yamamoto[1], T. Uemura[1] ([1]Hokkaido Univ., [2]TDK)

Spin injection, magnetization switching **13:00 〜14:30** Chair: H. Saito (AIST)

13pB-1 Exchange coupled hybrid memory layer with low Curie temperature CoPd/Pd multilayer for high-density magnetic random-access memory cells

°W. Zhao[1], T. Kimura[1], X. Dong[1], D. Oshima[1], T. Kato[1], Y. Sonobe[2], Y. Kawato[2], S. Iwata[1]

([1]Nagoya Univ., [2]Samsung Research Inst. Jpn.)

13pB-2 Dependence of critical current of spin transfer torque magnetization switching on the layer thickness ratio of Co/Pd multilayers

°W. Zhao[1], T. Kimura[1], D. Oshima[1], T. Kato[1], Y. Sonobe[2], Y. Kawato[2], S. Iwata[1]

([1]Nagoya Univ., [2]Samsung Research Inst. Jpn.)

13pB-3 Electric-field-assisted spin Hall magnetization switching in perpendicularly magnetized Co ultra-thin films

°K. Kunishima, X. Zhou, D. Oshima, T. Kato, S. Iwata (Nagoya Univ.)

13pB-4 Fabrication of all-epitaxial CoFe/n-Ge/Fe_3Si vertical structures

°T. Shiihara, S. Oki, S. Sakai, M. Ikawa, S. Yamada, K. Hamaya (Osaka Univ.)

13pB-5 Nonlocal spin signals in Ge-based lateral spin valves with unstable anti-parallel magnetic configuration

°S. Oki[1], M. Yamada[1], S. Yamada[1], K. Sawano[2], K. Hamaya[1] ([1]Osaka Univ., [2]Tokyo City Univ.)

13pB-6 Electrical spin injection and detection in an AlGaAs/GaAs-based high-mobility two-dimensional electron system

°D. Pan, Z. Lin, R. Mahmoud, T. Uemura (Hokkaido Univ.)

Sep. 13/Room C

Soft magnetic material (Application) **9:00 〜10:15** Chair: M. Naoe (DENJIKEN)

13aC-1 Trial Manufacturing of Amorphous Material for Power Electronics Excitation

T. Hamashima, T. Takeuchi, °K. Fujisaki (Toyota Tech. Inst.)

13aC-2 Fabrication of 1-μm-thick CoFeB steel strips for power electronics excitation

°Y. Takamura[1], Y. Ogawa[1], W. Koganoki[1], S. Nakagawa[1], K. Fujisaki[2] ([1]Tokyo Inst. Tech., [2]Toyota Tech. Inst.)

13aC-3 Soft magnetic metal flake composite suitable for high frequency, low profile power supply.

°S. Mikoshiba, H. Shima, K. Chatani (TOKIN)

13aC-4 Development of low height inductor for high current

°H. Shima, S. Mikoshiba, K. Chatani (TOKIN)

13aC-5 Strobe method magnetic domain observation of oriented electrical steel sheet in condition of excitation using LED light source

°Y. Odagiri[1], E. Yanagisawa[1], S. Meguro[1], S. Saito[2] ([1]NEOARK, [2]Tohoku Univ.)

Soft magnetic material (Fe, Oxide) **10:30 〜12:15** Chair: S. Fujieda (Tohoku Univ.)

13aC-6 Single crystal growth by self-flux method of hexagonal ferrites

°T. Saho, K. Kakizaki, K. Kamishima (Saitama Univ.)

13aC-7 Magnetostriction Behaviors of $Fe_{100-x}Co_x$ Alloy Epitaxial Thin Films under Rotating Magnetic Fields

°K. Serizawa[1,2], T. Kawai[1], M. Ohtake[1], M. Futamoto[2], F. Kirino[3], N. Inaba[4]

([1]Yokohama National Univ., [2]Chuo Univ., [3]Tokyo Univ. of Arts, [4]Yamagata Univ.)

13aC-8 Thickness and growth temperature dependence of soft magnetic properties of (FeCo)-Si alloy thin films

°K. Abe[1,2], S. Wu[1,3], Y. Ariake[1,2], I. Kanada[1,2], T. Mewes[1,3], G. Mankey[1,3], Y. Tanaka[2], C. Mewes[1,3], T. Suzuki[1,3]

([1]MINT Center, [2]TDK, [3]Univ. of Alabama)

13aC-9 Preparation and Magnetic Properties of $ZnFe_2O_4$ by MOD Technique

°N. Adachi, Y. Nakata, T. Ota (Nagoya Inst. Tech.)

13aC-10 Improvement in soft magnetic properties of Fe-Ni films prepared in DES-based plating baths with additives
°T. Yanai, T. Yamaguchi, T. Morimura, M. Nakano, H. Fukunaga (Nagasaki Univ.)

13aC-11 Basic investigation on silica coating iron-based metal particles
°Y. Inagaki, K. Sugimura, N. Yabu, T. Sato, M. Sonehara (Shinshu Univ.)

13aC-12 Room temperature weak ferromagnetism of the natural superlattice (LaO)ZnAs
°K. Takase, T. Shimomura, Y. Takano (Nihon Univ.)

Symposium "Multiscale analysis of magnetic materials and its application for electrical vehicle drive system"

Chief Organizer: T. Takura (Tohoku Inst. Tech.)

13:00 〜15:00 Chair: M. Ohtake (Yokohama National Univ.)

13pC-1 Issues with Micromagnetic Numerical Simulations of Magnetic Structures of Soft Magnetic Materials for Electric Vehicles (30 min.)
°F. Akagi (Kogakuin Univ.)

13pC-2 Polycrystalline Magnetic Field Analysis of Electrical Steel for Magnetic Multi-Scale (30 min.)
°K. Fujisaki (Toyota Tech. Inst.)

13pC-3 Harmonic Iron Loss Analysis of Rotating Machines: Practical Macro Modeling for Stress and Hysteresis (30 min.)
°K. Yamazaki (Chiba Inst. Tech.)

13pC-4 Homogenization Techniques for Laminated Core and Soft Magnetic Composites in Magnetic Field Analysis (30 min.)
°K. Muramatsu (Saga Univ.)

15:15 〜17:15 Chair: Y. Asano (Daikin Industries)

13pC-5 Magnetic Material Modeling and Simulation Technology for Loss Calculation (30 min.)
°A. Furuya[1], Y. Uehara[1], K. Shimizu[1], J. Fujisaki[1], T. Ataka[1], H. Kawano[2], H. Oshima[2] ([1]Fujitsu, [2]Fujitsu Labs.)

13pC-6 Magnetic properties and variational calculus (30 min.)
°F. Ikeda (Photon)

13pC-7 Issues of Material Modeling in Electromechanical Simulations (30 min.)
°T. Yamada, H. Sano, K. Narita (JSOL)

13pC-8 Equivalent circuit of Eddy Current Field in Cauer Form (30 min.)
°Y. Shindo[1], T. Matsuo[2] ([1]Kawasaki Heavy Industries, [2]Kyoto Univ.)

Sep. 13/Room D

Perpendicular magnetic films **9:00 〜10:30** Chair: K. Ito (Tohoku Univ.)

13aD-1 Large perpendicular magnetic anisotropy in Fe/$MgAl_2O_4$ heterostructures
°Q. Xiang[1, 2], R. Mandal[2], H. Sukegawa[2], Y. K. Takahashi[2], S. Mitani[1, 2] ([1]Univ. of Tsukuba, [2]NIMS)

13aD-2 Theoretical study on perpendicular magnetic anisotropy at Fe/$MgAl_2O_4$ interface
°K. Masuda, Y. Miura (NIMS)

13aD-3 Theoretical prediction of perpendicular magnetic anisotropy at Fe/$CuIn_{1-x}Ga_xSe_2$ interface
°K. Masuda, S. Kasai, Y. Miura (NIMS)

13aD-4 Large perpendicular magnetic anisotropy in Fe_3O_4/Cr multilayer films
°D. Oshima, T. Kato, S. Iwata (Nagoya Univ.)

13aD-5 Reversal process of perpendicular exchange bias by magnetoelectric field cooling for Pt/Co/Au/Cr_2O_3/Pt stacked film
°Y. Shiratsuchi[1], S. Wataneb[1], S. Yonemura[2], R. Nakatani[1] ([1]Osaka Univ., [2]TDK)

13aD-6 Tunneling conductivity in perpendicularly magnetized cobalt ferrite films prepared on metallic TiN layers
°M. Tanaka[1], K. Nomura[1], T. Okuno[2], S. Honda[3], T. Ono[2], K. Mibu[1] ([1]Nagoya Inst. Tech., [2]Kyoto Univ., [3]Kansai Univ.)

Metallic films **10:45 〜11:45** Chair: K. Masuda (NIMS)

13aD-7 Formation of $L1_0$-ordered FeNi films by nitrogen extraction from FeNiN films
°K. Ito[1], M. Hayashida[1], M. Mizuguchi[1], T. Suemasu[2], H. Yanagihara[2], K. Takanashi[1] ([1]Tohoku Univ., [2]Univ. of Tsukuba)

13aD-8 Perpendicular magnetic anisotropy of the FePd thin films on MgO seed layers
°H. Miyajima, K. Kamishima, K. Kakizaki (Saitama Univ.)

13aD-9 Preparation of composition modulated $Mn_{3-x}Fe_xGa$ thin films and their magnetic properties
°K. Sato, S. Katayama, T. Shima, M. Doi (Tohoku Gakuin Univ.)

13aD-10 Microfabrication and magnetic properties of $L1_0$-MnGa/Cr/$D0_{22}$-MnGa tri-layer thin films
°Y. Kikuchi, H. Makuta, T. Shima, M. Doi (Tohoku Gakuin Univ.)

Fine particles **13:30 〜 14:45** Chair: S. Tomita (NAIST)

13pD-1 Challenge to the synthesis of semi-hard α"-$(Fe, Co)_{16}N_2$ nanoparticles obtained by hydrogen reduction and subsequent nitrogenation starting from α-(Fe, Co)OOH
°M. Tobise, S. Saito (Tohoku Univ.)

13pD-2 Fabrication of ferromagnetic iron-nitride nanocomposite and its magnetic properties
°T. Ogawa[1, 2], N. Kobayashi[1, 2, 3], G. Ruwan[4] ([1]Tohoku Univ., [2]Future Materialz, [3]Kyoto Univ., [4]Univ. Ruhuna)

13pD-3 Fabrication of Magnetic Fe-Ni-epoxy Composite Film by the LbL Assisted Composite Plating Method
°M. Takeuchi[1], H. Muto[2], Y. Watanabe[1], N. Fujita[1] ([1]Nara Nat. Coll. Tech., [2]Toyohashi Univ. Tech.)

13pD-4 Structure of mesoporous silica thin films for ordered magnetic nanoparticles
°T. Kimura, T. Haeiwa (Shinshu Univ.)

13pD-5 Stracture of hexagonal mesoporous silica thin films with Co nano-particls
°T. Satou, T. Haeiwa (Shinshu Univ.)

Thin films: Magnetic resonance **15:00 〜 16:15** Chair: N. Kobayashi (DENJIKEN)

13pD-6 Magnetization dynamics of permalloy thin films with silver/bismuth interfaces
°S. Tomita[1], S. Seno[1], T. Kato[2], D. Oshima[2], S. Iwata[2], N. Hosoito[1], H. Yanagi[1] ([1]NAIST, [2]Nagoya Univ.)

13pD-7 Estimation of Damping Constant and Saturation Magnetostriction in Magnetic Thin Films Using New Magnetization Dynamics Measurement Method
°Y. Endo[1], O. Mori[2], S. Yabukami[1], R. Utsumi[2], Y. Shimada[2] ([1]Tohoku Univ., [2]Toei Scientific Industrial)

13pD-8 Numerical analysis on magnetic resonance property in a multilayer nanodot with antiferromagnetic interlayer coupling
°M. Fukuzono, X. Ya, R. Akimitsu, T. Tanaka, K. Matsuyama (Kyushu Univ.)

13pD-9 Experimental of four-fold anisotropy and spin wave resonance property based on CoFeB thin film
°R. Akimitsu, X. Ya, M. Fukuzono, T. Tanaka, K. Matsuyama (Kyushu Univ.)

13pD-10 Voltage-induced SW resonance properties in perpendicular nanowires
°X. Ya, M. Fukuzono, R. Akimitsu, T. Tanaka, K. Matsuyama (Kyushu Univ.)

Thin films: Magnet-optical effects **16:30 〜 17:45** Chair: S. Saito (Tohoku Univ.)

13pD-11 Effect of lattice mismatch of yttrium iron garnet films on spin wave propagation properties
°T. Yoshimoto[1], T. Goto[1, 2], B. Iwamoto[1], Y. Nakamura[1], H. Uchida[1], C. A. Ross[3], M. Inoue[1]
([1]Toyohashi Univ. Tech., [2]JST-PREST, [3]MIT)

13pD-12 Effect of decomposition time on crystallization of garnet films for spin wave devices fabricated by metal organic decomposition method
°Y. Hironaka, Y. Ashizawa, K. Nakagawa (Nihon Univ.)

13pD-13 High frequency transmission line design dependence of magnetization dynamics in yttrium iron garnet
°T. Koda[1], S. Muroga[2], Y. Endo[3] ([1]Oshima Nat. Coll. Tech, [2]Akita Univ., [3]Tohoku Univ.)

13pD-14 Giant Faraday effect of metal-fluoride nanogranular films
°N. Kobayashi[1], K. Ikeda[1], G. Bo[2], S. Takahashi[3], H. Masumoto[3], S. Maekawa[4]
([1]DENJIKEN, [2]UCAS, [3]Tohoku Univ., [4]RIKEN)

13pD-15 Fabrication of $(Tb,Bi)_3(Fe,Ga)_5O_{12}$ films for integrated Q-switched laser
°R. Morimoto[1], T. Goto[1, 2], Y. Nakamura[1], P. B. Lim[1], H. Uchida[1], M. Inoue[1] ([1]Toyohashi Univ. Tech., [2]JST-PREST)

Sep. 14/Room A

Power Magnetics I **9:00 〜 10:30** Chair: S. Ikeda (Komatsu Univ.)

14aA-1 Effect of a magnetic field from the horizontal direction on a magnetically levitated steel plate (Experimental consideration on applied position of tension)
°Y. Ito, Y. Oda, K. Okuno, T. Narita, H. Kato (Tokai Univ.)

14aA-2 Fundamental consideration on vibration mechanism in thin steel plate with curvature during magnetic levitation
°M. Tada, K. Ogawa, T. Narita, H. Kato (Tokai Univ.)

14aA-3 Loss Calculation of Field-Winding type Claw-Pole Motor based on Reluctance Network Analysis
°Y. Ichikawa, K. Nakamura (Tohoku Univ.)

14aA-4 Efficiency Improvement of In-Wheel Magnetic-Geared Motor for Walking Support Machines
°K. Ito, T. Kadomatsu, K. Nakamura (Tohoku Univ.)

14aA-5 Deterioration Prediction Method of Magnetic Properties in Magnetic Core due to Machining Process by using LLG Equation
°Y. Hane[1], K. Nakamura[1], T. Yoshioka[2], T. Kawase[2], T. Ishikawa[2] ([1]Tohoku Univ., [2]DENSO)

14aA-6 Torque Improvement of Interior Permanent Magnet Magnetic Gear
°Y. Mizuana[1], K. Nakamura[1], Y. Suzuki[2], Y. Oishi[2], Y. Tachiya[2], K. Kuritani[2] ([1]Tohoku Univ., [2]Prospine)

Power Magnetics II **10:45 〜12:00** Chair: H. Kato (Tokai Univ.)

14aA-7 Prototype Tests of Transverse-Flux-type Switched Reluctance Motor
°T. Komoriya, Y. Ito, K. Nakamura (Tohoku Univ.)

14aA-8 Efficiency Improvement of High-Speed Cooling-Fan Motor
°K. Kawamura[1], K. Nakamura[1], O. Ichinokura[1], H. Goto[2], H. Guo[3]
([1]Tohoku Univ., [2]Utsunomiya Univ., [3]Tohoku Gakuin Univ.)

14aA-9 Reduction of AC resistance caused by proximity effect using magnetocoated wire
°K. Torishima[1], T. Yamamoto[1], Y. Bu[1], T. Mizuno[1], Y. Honda[2] ([1]Shinshu Univ., [2]Hitachi Metals)

14aA-10 Fundamental study of a magnetic particle composite core transformer for the LLC resonance DC-DC convertor embedded in an organic interposer
°R. Oka, T. Shirasawa, S. Ishida, T. Akiyama, T. Sato, M. Sonehara (Shinshu Univ.)

14aA-11 Design of Micro Processing tools for Flat Plate utilizing Magnetic Compound Fluid
°S. Ikeda[1], T. Matsuba[2], K. Fujihira[2], H. Yamamoto[2], H. Nishida[2] ([1]Komatsu Univ., [2]Toyama Nat. Coll. Tech.)

Symposium "Magnetic thin films: synthesis and spectroscopy" Chief Organizer: A. Chikamatsu (Univ. of Tokyo)

14:00 〜15:30 Chair: A. Chikamatsu (Univ. of Tokyo)

14pA-1 Controlling the all-in-all-out magnetic domains in pyrochlore iridate thin films and heterostructures (30 min.)
°Y. Kozuka (NIMS)

14pA-2 Atomic-scale studies of structural and electronic properties in functional transition metal oxide thin films using scanning tunneling microscopy/spectroscopy (30 min.)
°R. Shimizu (Tokyo Inst. Tech., JST-PREST)

14pA-3 Origin of interfacial ferromagnetism between perovskite transition-metal oxides $LaNiO_3$ and $LaMnO_3$ (30 min.)
°M. Kitamura[1, 2], K. Horiba[1], M. Kobayashi[1], E. Sakai[1], M. Minohara[1], R. Yukawa[1], D. Shiga[1], K. Amemiya[1], T. Nagai[3], Y. Nonaka[2], G. Shibata[2], A. Fujimori[2], H. Fujioka[2], H. Kumigashira[1] ([1]KEK, [2]Univ. of Tokyo, [3]NIMS)

15:45 〜16:45 Chair: H. Wadati (Univ. of Tokyo)

14pA-4 Ferroelectric and Magnetic Properties in Room-Temperature Multiferroic $GaFeO_3$-type Thin Films (30 min.)
°T. Katayama[1], S. Yasui[2], Y. Hamasaki[3], M. Itoh[2] ([1]Univ. of Tokyo, [2]Tokyo Inst. Tech., [3]National Defense Academy)

14pA-5 Synthesis and spectroscopic analysis of novel ordered alloy with large uniaxial magnetic anisotropy
°M. Mizuguchi, K. Takanashi (Tohoku Univ.)

Sep. 14/Room B

Medical beads **9:00 〜10:30** Chair: S. Seino (Osaka Univ.)

14aB-1 Analytical relaxation behavior of iron oxide nanoparticles in fluids under AC magnetic field
°A. Ikuta, Y. Kitamoto (Tokyo Inst. Tech.)

14aB-2 Effect of ionic concentration on dynamic magnetic susceptibility of iron oxide nanoparticles embedded in chitosan hydrogel matrix
°M. E. Villamin, Y. Kitamoto (Tokyo Inst. Tech.)

14aB-3 Development of Verification System for Magnetic Particle Imaging
°K. Yamauchi[1], K. Nomura[1], T. Matsuda[1], Y. Sakamoto[1], H. Inoue[1], S. Tonooka[1], S. Sato[1], T. Ide[2], K. Fujiwara[2], Y. Ichiyanagi[2]
([1]MITSUBISHI, [2]Yokohama National Univ.)

14aB-4 Specific loss power of Resovist enhanced by aligning its magnetic easy axes
°G. Shi[1], R. Takeda[1], K. Nishimoto[1], S. B. Trisnanto[1], T. Yamada[1], S. Ota[2], Y. Takemura[1]
([1]Yokohama National Univ., [2]Shizuoka Univ.)

14aB-5 Wash Free Detection of Biological Targets Utilizing Magnetic Markers
°K. Irie[1], K. Akiyoshi[1], T. Yoshida[1], T. Sasayama[1], K. Enpuku[1], M. Hara[2] ([1]Kyushu Univ., [2]Tamagawa)

14aB-6 Evaluation of dispersion characteristics of nanoparticles in magnetic fluid by small angle X-ray scattering
°H. Sudo[1], H. Mamiya[2], J. Cuya[1], K. Suzuki[1], H. Miyamura[1], J. Balachandran[1] ([1]Univ. Shiga Pref., [2]NIMS)

Medical technology **10:45 〜12:00** Chair: T. Yoshida (Kyushu Univ.)

14aB-7 Magnetocardiography Measurements via Peak to Peak Voltage Detector Type MI Gradiometer
°J. Ma, T. Uchiyama (Nagoya Univ.)

14aB-8 Noise reduction in Magnetocardiograph based on Time-shift PCA without reference sensor system
°I. Morio, K. Kobayashi (Iwate Univ.)

14aB-9 Remote sensing of ciliary beating with magnetic sensors
°R. Makibatake, D. Oyama, J. Kawai, H. Tatsumi (Kanazawa Inst. Tech.)

14aB-10 Localization Method of a Solenoid Magnetic Marker Coil
°D. Oyama, Y. Adachi (Kanazawa Inst. Tech.)

14aB-11 Effect of ELF Magnetic Field on anticancer drug potency to human liver cancer cells
°T. Maeda[1], M. Kakikawa[1], S. Yamada[2] ([1]Kanazawa Univ., [2]Komatsu Univ.)

Hyperthermia **13:00 〜14:15** Chair: D. Oyama (Kanazawa Inst. Tech.)

14pB-1 Absorbance change of iron oxide nanoparticle suspension under damped oscillatory magnetic field.
°M. Suwa, A. Uotani, S. Tsukahara (Osaka Univ.)

14pB-2 Dynamics of magnetization and easy-axis of magnetic nanoparticles dispersed in liquid
°S. Ota[1], S. B. Trisnanto[2], Y. Takemura[2] ([1]Shizuoka Univ., [2]Yokohama National Univ.)

14pB-3 Magnetic property of interaction-free magnetite nanoparticles with different size and shape
°H. Fukumoto[1], H. Mamiya[2], J. Cuya[1], K. Suzuki[1], H. Miyanura[1], J. Balachandran[1] ([1]Univ. Shiga Pref., [2]NIMS)

14pB-4 Shape of the coil and the induction heating experiment of acupuncture warming applicator
°S. Yamada[1], Y. Ikeharta[2], K. Ikeda[1] ([1]Komatsu Univ., [2]Kanazawa Univ.)

14pB-5 Development of a 100-mm gap magnetic circuit type magnetic field generator for magnetic hyperthermia
°T. Ito, T. Nakagawa, R. Hasegawa, S. Seino, T. Yamamoto (Osaka Univ.)

Sep. 14/Room C

Magnetism **9:15 〜10:30** Chair: H. Tsuchiura (Tohoku Univ.)

14aC-1 Correlation of Gd magnetization and anomalous Hall effect in GdFe alloy thin film
°H. Hachisuka[1], Y. Kasatani[1, 2], H. Yoshikawa[1], A. Tsukamoto[1] ([1]Nihon Univ., [2]JSPS)

14aC-2 Temperature dependence of the magnetization switching behavior of a $Tb_{12}Co_{88}$ amorphous perpendicular magnetic anisotropy film
°A. Harako[1], H. Sakurai[1], K. Haishi[1], S. Liu[2], C. Ma[2], K. Suzuki[1], K. Hoshi[1], N. Tsuji[3], Y. Sakurai[3], A. Agui[4]
([1]Gumma Univ., [2]Shinshu Univ., [3]JASRI/SPring-8, [4]QST)

14aC-3 Gilbert damping constant of Fe–Al(001) single-crystal films
°T. Kawai[1], S. Takeda[2], M. Ohtake[1], M. Futamoto[3] ([1]Yokohama National Univ., [2]Magnontech, [3]Chuo Univ.)

14aC-4 Perpendicular Magnetic Anisotropy in $Mn_{3-x}Ga$ studied by XMCD and first-principles calculations
°J. Okabayashi[1], Y. Kota[2], K. Suzuki[3], A. Sakuma[3], S. Mizukami[3]
([1]Univ. of Tokyo, [2]Fukushima Nat. Coll. Tech., [3]Tohoku Univ.)

14aC-5 Modulation of magnetic-domain structure of Fe–Ga alloy single crystal by applying tensile and compression stresses parallel to a <100> direction
°S. Fujieda[1], S. Asano[1], R. Simura[1], S. Hashi[1], K. Ishiyama[1], T. Fukuda[2], S. Suzuki[1] ([1]Tohoku Univ., [2]Fukuda Crystal Lab.)

Hard magnetic material (Ferrite) **10:45 〜12:00** Chair: T. Hasegawa (Akita Univ.)

14aC-6 The magnetic anisotropy of Fe^{2+} in M-type ferrite: study on the La-Na M-type ferrite
°T. Waki, K. Takao, Y. Tabata, H. Nakamura (Kyoto Univ.)

14aC-7 Site-selective Co substitution in La–Co co-substituted M-type Sr ferrite: ^{59}Co-NMR study
°H. Nakamura[1], T. Waki[1], Y. Tabata[1], C. Meny[2] ([1]Kyoto Univ., [2]IPCMS)

14aC-8 Synthesis of Ce Substituted Sr M-type Ferrite by Controlling Oxygen Pressure
°G. Inoue, T. Waki, Y. Tabata, H. Nakamura (Kyoto Univ.)

14aC-9 Local strain dependence of uniaxial magnetic anisotropy in M-type ferrites
°J. Inoue[1], H. Nakamura[2], H. Yanagihara[1] ([1]Univ. of Tsukuba, [2]Kyoto Univ.)

14aC-10 Magnetic properties of Co-ferrite/Fe-Co bilayers
°C. Ma[1], Y. Hara[1], S. Shirsath[2], D. Wang[2], A. Morisako[1], X. Liu[1] ([1]Shinshu Univ., [2]University of New South Wales)

Hard magnetic material (Rare earth magnet) **13:00 〜15:00** Chair: M. Nakano (Nagasaki Univ.)

14pC-1 Preparation of Highly Coercive Nd–Fe–B Magnets by Grainboundary Modification Method and Precise Characterization of the Magnetic Properties
°K. Machida, N. Li, H. Zheng, H. Nishio, M. Endo (Osaka Univ.)

14pC-2 Temperature dependence of microstructure of Tb-rich shell in grain boundary diffusion processed Nd–Fe–B sintered magnets
°T. Kim[1], T. Sasaki[1], T. Ohkubo[1], Y. Fujikawa[2], M. Miwa[2], Y. Enokido[2], K. Hono[1] ([1]NIMS, [2]TDK)

14pC-3 First-order reversal curve diagrams in sintered Nd–Fe–B magnets with different crystal grain alignment
°H. Yamamoto, K. Motai, I. Kitagawa (Hitachi)

14pC-4 Highly sensitive magnetic measurement for a very small area of hot-deformed Nd–Fe–B magnet
°T. Yomogita[1], S. Okamoto[1, 2], N. Kikuchi[1], O. Kitakami[1], H. Sepehri-Amin[2], T. Ohkubo[2], K. Hono[2], T. Akiya[3], K. Hioki[4], A. Hattori[3] ([1]Tohoku Univ., [2]ESICMM, [3]Daido Electronics, [4]Daido Steel)

14pC-5 Inelastic neutron scattering study for $RE_2Fe_{14}B$ and $REFe_{11}Ti$
°T. Hawai[1], M. Yano[2], T. Shoji[2], H. Saito[1, 3], T. Yokoo[1, 3], S. Itoh[1, 3], K. Ono[1] ([1]KEK, [2]TOYOTA Motor, [3]J-PARC)

14pC-6 Structural and magnetic properties of $(Sm, Y)(Fe, Co)_{12-x}Ti_x$
°M. Hagiwara, N. Sanada, S. Sakurada (Toshiba)

14pC-7 Temperature dependence of the ferromagnetic resonance of Nd-Fe-B magnets
°M. Nishino[1], S. Miyashita[2] ([1]NIMS, [2]Univ. of Tokyo)

14pC-8 Effects of grain boundary phases on magnetization reversal process
°H. Tsukahara[1], K. Iwano[1], C. Mitsumata[2], T. Ishikawa[1], K. Ono[1] ([1]KEK, [2]NIMS)

Hard magnetic material (Rare earth free) **15:15 〜16:30** Chair: H. Yanagihara (Univ. of Tsukuba)

14pC-9 Magnetic properties of $L1_0$-$Mn_{50}Ga_{50-x}Al_x$ epitaxially grown thin films
°K. Kamiya[1, 2], Y. Tanaka[2], S. Zhao[1], G. Mankey[1], T. Suzuki[1] ([1]MINT Center, [2]TDK)

14pC-10 Stabilization of tetragonal FeCo structure and uniaxial magnetocrystalline anisotropy by VN addition
T. Hasegawa, °T. Niibori, Y. Nakamura, Y. Takemasa, M. Oikawa, C. Shirai, Y. Seki, S. Nakagawa (Akita Univ.)

14pC-11 Lattice distortion and uniaxial magnetocrystalline anisotropy of annealed FeCoAlC films
°Y. Takemasa, K. Kumagai, T. Hasegawa (Akita Univ.)

14pC-12 Stability of tetragonal FeCoX (X =VC, VN) deposited on amorphous substrates
°M. Oikawa, M. Sakamoto, T. Niibori, T. Hasegawa (Akita Univ.)

14pC-13 Effect of Cu-diffusion on hard magnetic properties of Fe-Pt thick-film magnets prepared by electroplating methods
Y. Omagari, J. Honda, S. Furutani, T. Morimura, °T. Yanai, M. Nakano, H. Fukunaga (Nagasaki Univ.)

Sep. 14/Room D

Functional thin films **9:00 〜10:15** Chair: Y. Shiratsuchi (Osaka Univ.)

14aD-1 Anomalous Nernst effect in $L1_0$-FeNi thin films fabricated by pulsed laser deposition
°M. Saito[1], H. Sharma[2], M. Kotsugi[1], M. Mizuguchi[2] ([1]Tokyo Univ. Sci., [2]Tohoku Univ.)

14aD-2 Electrical field induced controllable motion of magntic skyrmion bubbles
°X. Liu[1], C. Ma[1], X. Zhang[1], A. Morisako[1], T. Ono[2] ([1]Shinshu Univ., [2]Kyoto Univ.)

14aD-3 Preparation and properties of field-effect magnetic skyrmion transistor
°C. Ma[1], R. Arai[1], X. Zhang[1], Y. Yamada[1], A. Morisako[1], X. Liu[1], T. Ono[2] ([1]Shinshu Univ., [2]Kyoto Univ.)

14aD-4 Evaluation of magnetic property of Pt/$CoFe_2O_4$ ultra-thin film using magnetic proximity effect
°S. Nodo, T. Yamamoto, T. Yanase, T. Shimada, T. Nagahama (Hokkaido Univ.)

14aD-5 Change in Magnetic Properties of Fe-Ga Films with Ga Composition
°Y. Kawabe, Y. Endo, T. Miyazaki (Tohoku Univ.)

Magnetic sensor **10:30 〜12:00** Chair: T. Kato (Nagoya Univ.)

14aD-6 Magnetometer Based on Inductance Modulation in Coils Made of High-T_c Superconductor
°K. Enpuku, Y. Yoshida, S. Yamashita, M. Matsuo, T. Sasayama, T. Yoshida (Kyushu Univ.)

14aD-7 Investigation of serial magnetic tunnel junction sensors for high signal-to-noise ratio in eddy current testing
°Z. Jin, M. A. Ihsan, M. Oogane, K. Fujiwara, Y. Ando (Tohoku Univ.)

14aD-8 CPW transmission line type magnetic sensor module
°J. Hayasaka[1], K. Sugawara[1], H. Uetake[1], S. Yabukami[2], K. Arai[1] ([1]DENJIKEN, [2]Tohoku Univ.)

14aD-9 Study on shape of magnetic-yoke for Faraday-effect optical prove current sensor
°K. Yamazaki, Y. Fujishiro, K. Shiota, K. Iwami, M. Sonehara, T. Sato (Shinshu Univ.)

14aD-10 Optical magnetic field sensors using FeCo–MgF nanogranular films
°H. Ohba, N. Kobayashi, K. Ikeda, K. Arai (DENJIKEN)

14aD-11 Evaluation method of amorphous magnetic ribbons for the FM-OFG magnetometer
°I. Sasada (Kyushu Univ.)

Magnetic properties and Magnetostriction Measurement 13:00 〜14:15 Chair: S. Yabukami (Tohoku Univ.)

14pD-1 Development of New Measurement Method for Magnetostriction of Magnetic Amorphous Alloy Ribbon
°Y. Endo[1], Y. Shimada[2], Y. Kawabe[1], B. Fang[1], O. Mori[2], S. Sato[2], R. Utsumi[2] ([1]Tohoku Univ., [2]Toei Scientific Industrial)

14pD-2 Stress evaluation by Barkhausen noise measurement under rotating magnetic field
°T. Ono, Y. Nakashima (Fuji Electric)

14pD-3 Mgangetostricrion measurement system of magnetic thin films with Michelson interference
°M. Sato, Y. Yoshida, T. Suzuki, Y. Takahashi, K. Koike, N. Inaba (Yamagata Univ.)

14pD-4 Effect of Winding Stress on DC Magnetic Properties of Ring Sample
°Y. Baba (KISTEC)

14pD-5 Design of mangle type magnetic field source using permanent magnets
°H. Sakuma[1], T. Kikuchi[2] ([1]Utsunomiya Univ., [2]Hayama)

High frequency magnetism, permeability **14:30 〜16:15** Chair: M. Sonehara (Shinshu Univ.)

14pD-6 Improving accuracy for a high frequency magnetization process measurement and characterization of magnetic materials
°R. Onodera[1], T. Kuroiwa[2], H. Yanagihara[2], M. Kin[3], H. Kura[3], E. Kita[1]
([1]Ibaraki Nat. Coll. Tech, [2]Univ. of Tsukuba, [3]DENSO)

14pD-7 Measurement of local magnetostriction for a thin film deposited on Si wafer
°O. Mori[1], Y. Endo[2], Y. Shimada[2], S. Yabukami[2], R. Utsumi[1] ([1]Toei Scientific Industrial, [2]Tohoku Univ.)

14pD-8 Complex permeability measurement of magnetic thin film up to 30GHz by short-circuited coaxial line
S. Takeda[1], H. Aoki[2], °S. Yamasaki[3], H. Masumoto[2], H. Suzuki[3] ([1]Magnontech, [2]Tohoku Univ., [3]KEYCOM)

14pD-9 Demagnetization effect in high frequency complex permeability measurement
S. Takeda[1], °M. Taguchi[2], S. Yamasaki[2], S. Motomura[2], T. Hotchi[2] ([1]Magnontech, [2]KEYCOM)

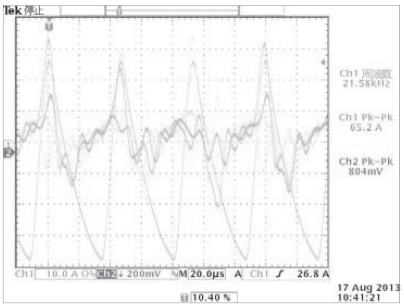
14pD-10 Theoretical Study on Skin Effect Loss Reduction of Cylinder Multi-layer Transmission Line with Positive/Negative Permeability Materials
°Y. Aizawa, R. Moriyama, K. Kubomura, H. Nakayama (Nat. Ins. Tech. Nagano Coll.)

14pD-11 Measurement of magnetic properties of a thin soft ferrite film by spray-coat method
°T. Hara[1], M. Yamaguchi[2], J. Konishi[3] ([1]Ricoh Electronic Devices, [2]Tohoku Univ., [3]Ricoh)

14pD-12 Study on the Magnetic Nonlinear Mixing Frequency Technique and Its Application in Mechanical Properties Assessment
°Y. Chang[1], J. Jiao[1], S. Kobayashi[2], C. He[1], B. Wu[1] ([1]Beijin Univ. Tech., [2]Iwate Univ.)

短パルス・高周波磁場測定に特化したホール素子式ガウスメーター

測定例：電磁調理器の漏れ磁場測定



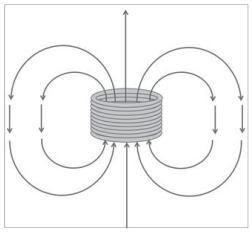
測定波形

ホール素子磁気センサーの特徴

・磁場発生源のベクトル方向を正確に検出・・・ 他方式のセンサーにない高い指向性がホール素子の特徴です。
・極小エリアの磁場を正確に検出・・・・・・・・・・・・ 検出部面積30×30umピンポイント測定に適しています。
・高いダイナミックレンジ・・・・・・・・・・・・・・・・・・・・ 数mT～数T 高磁場領域までの高いリニアリティーを実現。

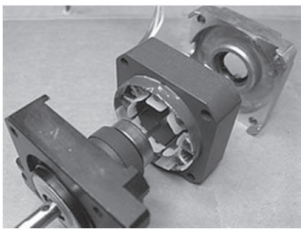
従来の高周波磁場測定の問題点である誘導ノイズ起因の誤測定を大幅に改善したガウスメーターです。

適用事例・測定のご提案

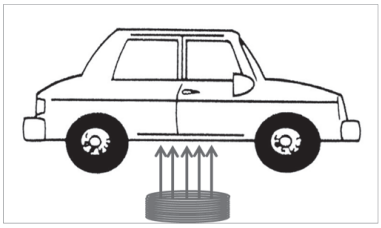


着磁パルス磁場

誘導加熱



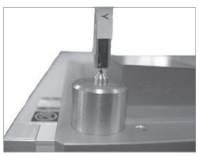
モーター、トランスの
漏洩磁場

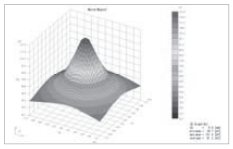


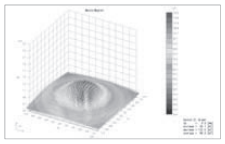
非接触給電

3次元磁場測定装置と受託測定のご提案

・理論計算と実測の一致を目指しています。・・・・・・・ センサーと測定座標の整合性評価を行います。
・測定の再現性を重視しています。・・・・・・・・・・・・・・ センサーギャップ調整を自動化。
・専門的な見地で受託測定及びレポートを作成・・・・ トレーサビリティに対応しています。







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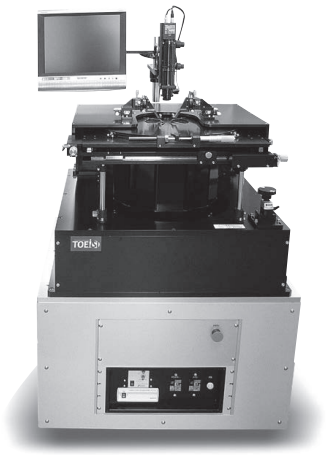
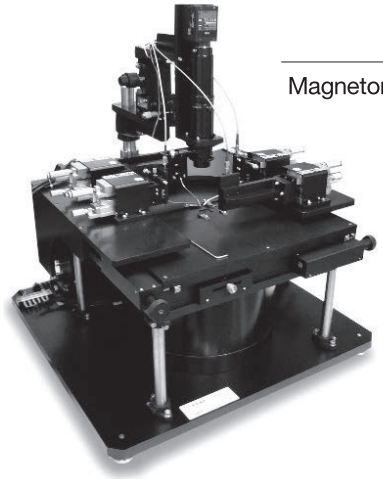
3D Magnetic Field Profiler

The main feature of the products is a combination of a high sensitivity field sensor and amulti-axis position control system.
This allows high speed 3D measurements of magnetic field with a high magnetic and spatial resolution (±0.5 Oe and ±0.5μm) The systems deal with the objects with a wide veriety of dimensions and shapes such as permanent magnets, magnetic field sensors,electric motors and magnetic circuits.

Omni-Directional Field Prober



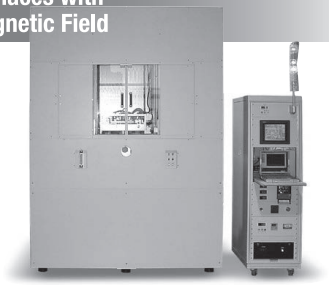
Longitudinal and Perpendicular Magnetic Field Prober



Main Products

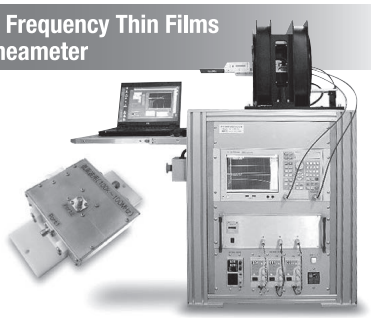
Magnetoresistance measurement system
TMR measurement system
Non-magnetic autoprober
Non-magnetic semi-autoprober
Non-magnetic manual prober
Non-magnetic RF prober
Non-magnetic probe card

Furnaces with Magnetic Field



Magnetostriction Measurement System for Ultra-Thin Films

High Frequency Thin Films Permeameter



Low Residual Field Electromagnets

Electromagnets

Main Products: Helmholtz coil, Solenoid coil, Weiss magnet, Double yoke magnet, Bitter magnet, Variable gap magnet, Coils for opytical research and others.

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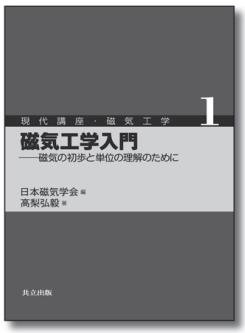

本シリーズは，学部上級生から修士・若手技術者を主対象に，磁気工学における新機軸の研究対象と基礎的要素を結びつける教科書として企画・刊行。

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本シリーズは磁気工学の基礎理論から最先端まで幅広い分野からテーマを集め，境界領域も含めて様々な研究分野に寄与する磁気の参考書として編纂。

1 磁気の付随現象とその応用
井上光輝著……続　刊

2 磁性の電子論 日本磁気学会『平成25年度出版賞』受賞
佐久間昭正著……356頁・本体5,000円

3 反強磁性体 ―応用への展開―
深道和明著……344頁・本体5,000円

4 垂直磁気記録
岩崎俊一・中村慶久・大内一弘・村岡裕明・青井　基著……続　刊

マグネティクス・イントロダクション 全5巻　【各巻A5判・並製本】

本シリーズは磁気の初学者とその周辺領域の読者を対象に，磁気の基礎の基礎から興味深い磁気現象や最先端の研究・技術まで，やさしく正確に解説。

1 磁気工学超入門 ―ようこそ，まぐねの国へ―
佐藤勝昭著……168頁・本体2,500円

2 メタマテリアル ―光と磁気の不思議な関係―
冨田知志他著……続　刊

3 物質の中の磁気と光
澤田　桂著……続　刊

4 環境保全に貢献する高磁場技術
廣田憲之他著……続　刊

5 さまざまなところで活躍する磁気センサ
藪上　信他著……続　刊

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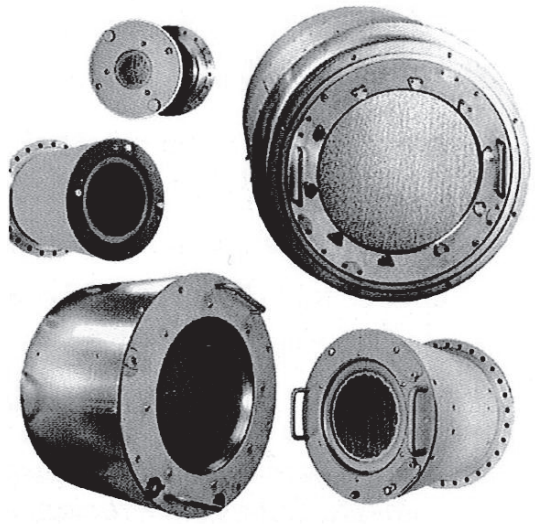

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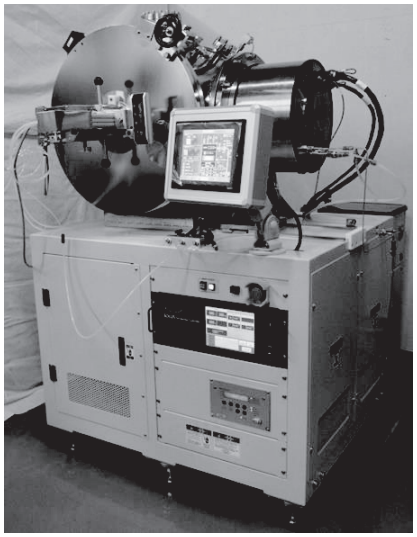

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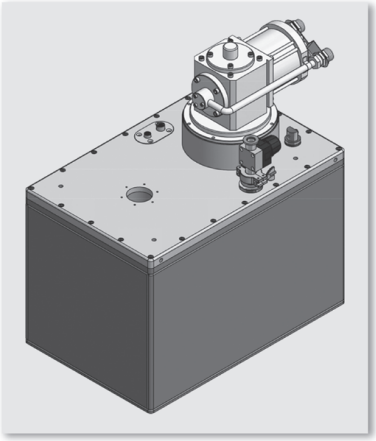
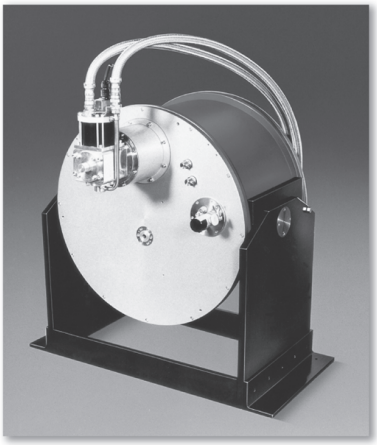


新ミニ型テーブルトップ無冷媒マグネット

超小型無冷媒マグネットですので実験台に設置が出来ます。
縦横の方向転換、水平移動も容易です。
新マイクロ型のコンプレッサは空冷、単相AC100Vで使用できます。

磁場強度：	5T～7T
室温ボア径：	52mm
構成：	本体、空冷コンプレッサ、 バイポーラマグネット電源



無冷媒マグネット

小型高性能な無冷媒マグネットです。

磁場強度：	5T～14T
室温ボア径：	50mm～200mm
磁場均一度：	0.1%@10mmdsv（高均一度型はオプション）
マグネット：	ソレノイド型、スプリットペア型
構成：	本体、コンプレッサ、バイポーラマグネット電源、 コンピュータコントロール

無冷媒サンプル冷却クライオスタット内蔵無冷媒マグネット

完全無冷媒でヘリウムガス中サンプルの冷却、温度コントロール及び超伝導マグネットの励磁が出来ます。

サンプル温度範囲：	1.6K～300K
サンプル空間：	24mm、30mm、33mm径
マグネット：	ソレノイド5T～14T、 又はスプリットペア5T～7T
構成：	本体、コンプレッサ、バイポーラマグネット電源、 コンピュータコントロールシステム

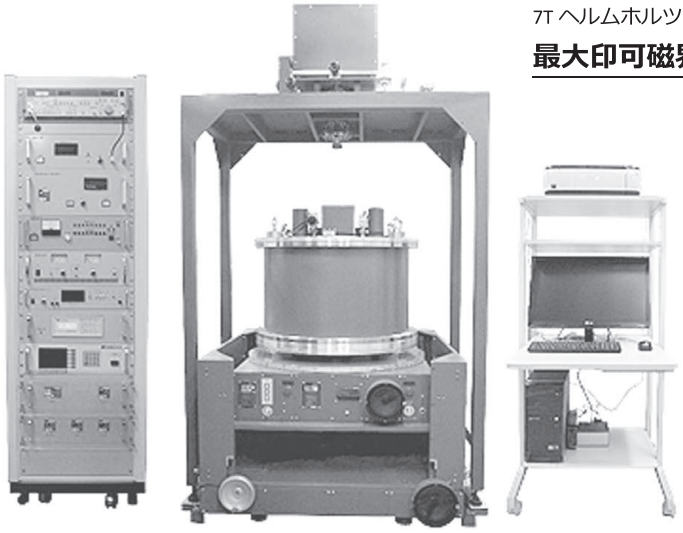
日本代理店　http://www.naccjp.com　nacc-c@naccjp.com

日本オートマティック・コントロール株式会社 理科学システム部

東京営業所 〒141-0032 東京都品川区大崎1-6-4
TEL 03-5434-1600　FAX 03-5434-1630
大阪 TEL(06)6541-3737　名古屋 TEL(052)252-7381　山口 TEL(0839)72-3764

ヘルムホルツコイル型 / ソレノイドコイル型

無冷媒超電導マグネット式高感度振動試料型磁力計



7T ヘルムホルツコイル型 VSM　TM-VSM7050-SM 型

最大印可磁界 7Tesla で磁化の高感度測定が可能

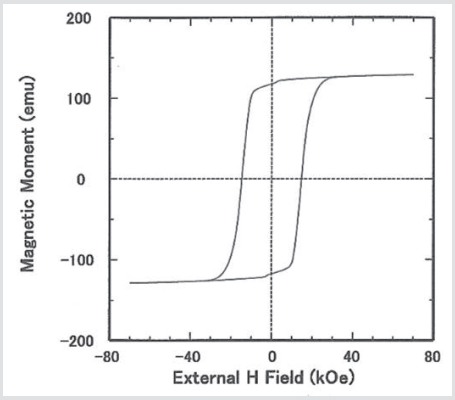
◆主な特徴

- ✓ ヘルムホルツコイル型のため磁界の均一性が良く、高感度の測定が可能です
- ✓ 超電導マグネットを回転させることにより、磁化の角度依存性が測定できます。また、磁気異方性トルク計と併用することが可能です

サンプル測定お引き受けします！

このシステムを当社にデモ機として常設しています。
初回 2 サンプル程度は無料で測定しますのでお気軽にご相談ください

－5mm 角 NdFeB 測定例－



7T ソレノイドコイル型 VSM にて測定

6Tesla ソレノイドコイル型 VSM

6T フルループ測定　最速５分

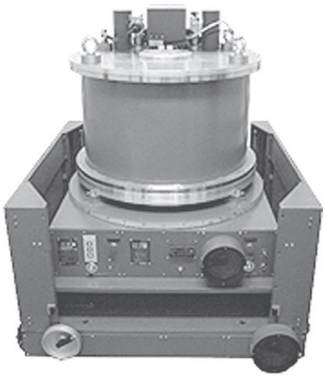
玉川製作所製　超電導マグネットシリーズ

【小型超電導マグネット】

仕様例；
発 生 磁 界：5Tesla
均　一　度：0.1% / 10mmDSV
室温ボア径：ϕ50.8mm
冷　凍　機：0.4W GM 冷凍機
寸　　法：W280mmxD200mm xH590mm
重　　量：約 60kg

【ラインナップ】
◆ソレノイドコイル型　5～10Tesla
◆ヘルムホルツコイル型　5～7Tesla
※特注承ります。ご相談ください

【10Tesla 超電導マグネット】



※写真は上下動台車付（オプション）

仕様例；
発 生 磁 界：10Tesla
均　一　度：0.1% / 10mmDSV
室温ボア径：ϕ70mm
冷　凍　機：1.5W GM 冷凍機
寸　　法：755mmϕ ×H480mm
重　　量：約 500kg

◆当社の超電導マグネットは、VSM や磁気異方性トルク計ほか、さまざまなシステムに組み合わせ可能です

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COMSOL MULTIPHYSICS®

マルチフィジックスの進化論

無制限・強連成で実現象に即したシミュレーション事例のご紹介

COMSOLご紹介セミナー

COMSOL Multiphysics®で、電磁界に加えて、構造・機械・振動・流体・伝熱、さらに加えて化学反応工学まで連成できるシミュレーションを始めませんか？

東京(神田)会場:10月24日、2019年1月23日

13:30開始～16:30終了(当日、個別のご相談も承ります)

※埼玉県さいたま市と福島での開催を計画中です

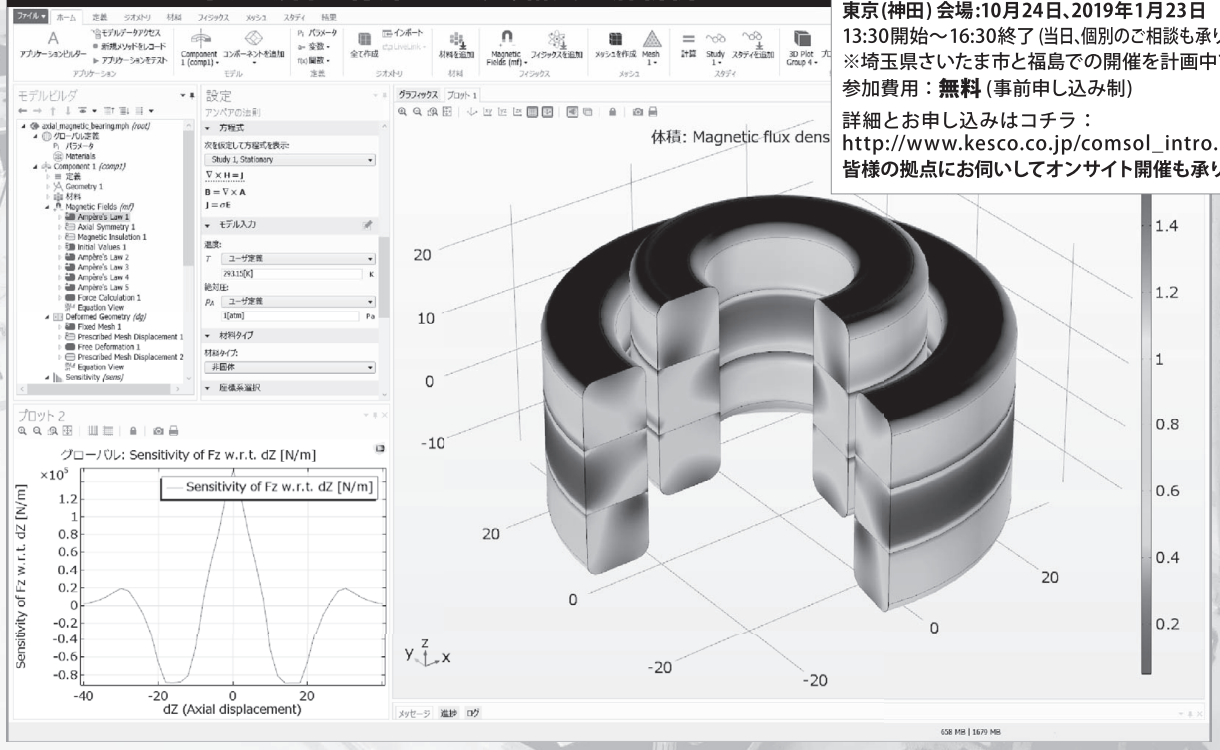
参加費用：**無料**(事前申し込み制)

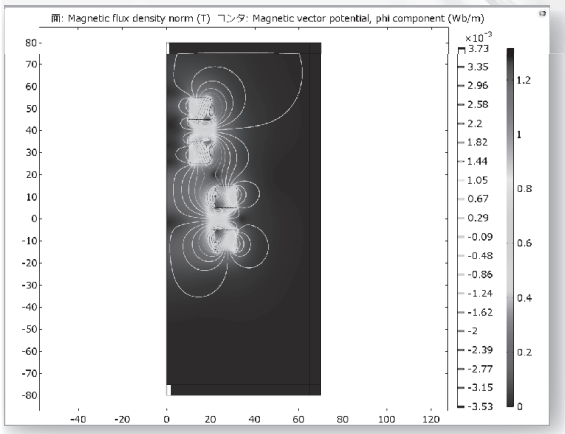
詳細とお申し込みはコチラ：

http://www.kesco.co.jp/comsol_intro.html

皆様の拠点にお伺いしてオンサイト開催も承ります

永久磁石を利用した磁気軸受の解析例





永久磁石を使用した磁気軸受

永久磁石を使用した軸受はターボ機械、ポンプ、モータ、発電機やフライホイール式エネルギー貯蔵システムなど、様々な分野で使用されています。非接触かつ潤滑不要で保守整備を大幅に省略できる点は、従来の機械式ベアリングと比べて重要なメリットです。

この例では、軸方向の永久磁石軸受の磁気力と剛性などの設計パラメータを計算する方法を示しています。

※AC/DCモジュールはCOMSOL Multiphysicsと併用するアドオン製品です。

AC/DC モジュールの適用例

- AC/DC 電流分布、電場分布
- バイオヒーティング
- コイルとソレノイド
- SPICE 回路とフィールドシミュレーション
- 接触抵抗
- 電磁両立性 (EMC) および電磁妨害 (EMI)
- 電磁力およびトルク
- 電磁力シールド
- 電気機械の変形
- ホール効果を利用したセンサ
- インシュレータ、コンデンサ、誘電体
- モータ、ジェネレータ、および他の電気機械
- 非線形材料
- 寄生容量とインダクタンス
- 永久磁石と電磁石
- 多孔質材料
- 抵抗および誘導加熱
- センサ
- 超伝導体
- 変圧器とインダクタ

COMSOL Multiphysics®なら、今まで不可能だった3種以上のマルチフィジックス解析を強連成で実現できます。30日間全機能無料トライアル、無料の導入セミナー、1000種を超える世界の様々な事例をご提供いたします。詳しくは、下記の弊社営業部までお問い合せください。

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