PROGRAM

Sep. 5/Room A

Symposium "Latest trends in ultra-low power consumption spintronic devices and circuits"
Magnetoelectric effect Chief Organizer: S. Mitani(NIMS)
13:00 〜14:30 Chair: H. Kubota(AIST)

5pA-1 Insight into new magnetic recording principle with magnetoelectric writing (30min.)
°M. Sahashi, M. K. Al-Mahdawi, S. P. Pati, S. Ye, Y. Shiokawa, T. Nozaki (Tohoku Univ.)

5pA-2 Characterization of magneto-electric switching energy in Cr_2O_3 antiferromagnetic thin films
°M. Al-Mahdawi, S. P. Pati, S. Ye, Y. Shiokawa, T. Nozaki, M. Sahashi (Tohoku Univ.)

5pA-3 Magnetic field dependence of threshold electric field for switching exchange bias polarity
°Thi Van Anh Nguyen, Y. Shiratsuchi, R. Nakatani (Osaka Univ.)

5pA-4 Enhanced magnetic anisotropy of magnetoelectric Cr_2O_3 film by Al-doping
°T. Nozaki, Y. Shiokawa, S. P. Pati, S. Ye, M. Al-Mahdawi, M. Sahashi (Tohoku Univ.)

5pA-5 Effect of heavy metal doping on the Morin transition of epitaxial α-Fe_2O_3 (0001) thin films
°M. Tanaka, K. Mikami, S. Ando, K. Mibu (Nagoya Inst. Tech.)

Symposium "Latest trends in ultra-low power consumption spintronic devices and circuits"
Voltage-torque MRAM Chief Organizer: S. Mitani(NIMS)
14:45 〜16:15 Chair: H. Yoda(Toshiba)

5pA-6 Challenges toward voltage-torque MRAM (30min.)
°S. Yuasa (AIST)

5pA-7 Large voltage-controlled magnetic anisotropy change in epitaxial Cr/ultrathin Fe/MgO/Fe magnetic tunnel junctions
°T. Nozaki[1], A. Koziol-Rachwal[1, 2], W. Skowronski[2], V. Zayets[1], Y. Shiota[1], S. Tamaru[1], H. Kubota[1], A. Fukushima[1], S. Yuasa[1], Y. Suzuki[1, 3] ([1]AIST, [2]AGH Univ., [3]Osaka Univ.)

5pA-8 Write error rate of voltage-driven dynamic magnetization switching
°Y. Shiota[1], T. Nozaki[1], S. Tamaru[1], T. Taniguchi[1], K. Yakushiji[1], H. Kubota[1], A. Fukushima[1], S. Yuasa[1], Y. Suzuki[1, 2] ([1]AIST, [2]Osaka Univ.)

5pA-9 Magnetization switching property in a free layer having higher-order magnetic anisotropy
°R. Matsumoto[1], H. Arai[1, 2], S. Yuasa[1], H. Imamura[1] ([1]AIST, [2]JST-PREST)

5pA-10 Deep etching microfabrication of perpendicularly magnetized MTJ
°A. Fukushima, K. Yakushiji, H. Kubota, S. Yuasa (AIST)

Symposium "Latest trends in ultra-low power consumption spintronic devices and circuits"
Nonvoltage VLSI Chief Organizer: S. Mitani(NIMS)
16:30 〜18:00 Chair: S. Mitani(NIMS)

5pA-11 Spintronics devices for nonvolatile VLSI (30min.)
°H. Ohno (Tohoku Univ.)

5pA-12 Low Power NV-Working Memory and NV-Logic with Spintronics/CMOS Hybrid ULSI Technology (30min.)
°T. Endoh, H. Koike, Y. Ma, T. Hanyu, S. Ikeda, H. Ohno (Tohoku Univ.)

5pA-13 Three-terminal spintronics devices with spin-orbit torque induced switching for ultra-low power and high-performance integrated circuits
°S. Fukami, C. Zhang, S. Duttagupta, A. Kurenkov, T. Anekawa, A. Ohkawara, H. Ohno (Tohoku Univ.)

5pA-14 Room temperature growth of ultrathin ordered Mn-Ga films
°K. Suzuki, R. Reza, A. Sugihara, T. Miyazaki, S. Mizukami (Tohoku Univ.)

Sep. 5/Room C

Symposium "Ultrafast optical study of magnetic materials" Chief Organizer: K. Ohishi（CROSS）

13:00 〜14:30 Chair: H. Wadati(Univ. of Tokyo)

5pC-1 Ultrafast Dynamics and Control of the Spin Systems using Terahertz Magnetic Field (30min.)
°M. Nakajima[1], T. Kurihara[1], H. Watanabe[1], T. Suemoto[2] ([1]Osaka Univ., [2]Toyota Physical and Chemical Research Institute)

5pC-2 Optical-switching of second harmonic light in chiral photomagnet (30min.)
°H. Tokoro[1, 2], S. Ohkoshi[2] ([1]Univ. of Tsukuba, [2]Univ. of Tokyo)

5pC-3 Ultrafast optical excitation of magnetic materials (30min.)
°N. Ogawa (RIKEN)

14:45 〜16:15 Chair: K. Ohishi(CROSS)

5pC-4 Photoinduecd spin-state dynamics in thin film of perovskite cobalt oxide investigated by time-resolved X-ray diffraction (30min.)
°R. Fukaya (KEK)

5pC-5 Magnetic dynamics study by soft X-ray photoemission electron microscopy (30min.)
°T. Ohkochi (JASRI)

5pC-6 Ultrafast dynamics studied by time-resolved X-ray diffraction (30min.)
°H. Wadati (Univ. of Tokyo)

Sep. 5/Room D

Power magnetics Ⅰ **13:00 〜14:30** Chair: K. Nakamura(Tohoku Univ.)

5pD-1 Electromagnetic levitation system for flexible steel plate using magnetic field from horizontal direction (Experimental consideration on suspension force for levitation)
°Y. Oda, M. Kida, T. Suzuki, T. Narita, H. Kato (Tokai Univ.)

5pD-2 Bending levitation control for flexible steel plate (Fundamental consideration on elastic vibration of bending steel plate)
°M. Tada, H. Yonezawa, H. Marumori, T. Narita, H. Kato (Tokai Univ.)

5pD-3 Effect of a magnetic field from the horizontal direction on a magnetically levitated transport steel plate (Fundamental study on the levitation characteristics)
°M. Kida, T. Narita, H. Kato, H. Moriyama (Tokai Univ.)

5pD-4 Noncontact guide for traveling elastic steel plate using electromagnets (Fundamental consideration on electromagnets placement using FEM)
°K. Kawasaki, T. Narita, H. Kato, H. Moriyama (Tokai Univ.)

5pD-5 Optimal placement of permanent magnet in hybrid magnetic levitation system for thin steel plate(Fundamental considerations on effect of magnetic field from horizontal direction)
°T. Suzuki, T. Narita, H. Kato, H. Moriyama (Tokai Univ.)

5pD-6 Generation of Ac Ampere force for pulling up an aluminum ring
°T. Ohji, K. Suda, K. Amei, M. Sakui (Univ. of Toyama)

Power magnetics Ⅱ **14:45 〜16:30** Chair: T. Narita(Tokai Univ.)

5pD-7 Consideration of Higher-Speed of SR Motor for Electric Power Tools
°Y. Kumasaka, K. Nakamura, O. Ichinokura (Tohoku Univ.)

5pD-8 A Study of Control of Linear Generator for Wave Power Generation
°D. Kamiya, H. Goto, O. Ichinokura (Tohoku Univ.)

5pD-9 Electromagnetic Field Analysis for Soft Magnetic Composite considering Magnetic Particles
°I. Masui, K. Nakamura, O. Ichinokura (Tohoku Univ.)

5pD-10 Design and Prototyping of 100 kVA Concentric-Winding type Three-Phase Variable Inductor based on Reluctance Network Analysis
°K. Nakamura[1], Y. Yamada[1], T. Ohinata[2], K. Arimatsu[2], M. Yamada[3], M. Takiguchi[3], T. Kojima[3], O. Ichinokura[1]
([1]Tohoku Univ., [2]Tohoku Electric Power, [3]Fuji Electric)

5pD-11 A Consideration of Demagnetizing Analysis of Ferrite Magnet Motor Based on RNA
°Y. Yoshida, D. Momma, K. Tajima (Akita Univ.)

5pD-12 Consideration of estimation for eddy current loss of transformer windings in the DC–DC converter based on RNA
°T. Hiwatashi, K. Tajima, Y. Yoshida (Akita Univ.)

5pD-13 Fabrication of surface-oxidized Fe-based metal composite transformer and its application to the flyback-type dc-dc converter
°K. Sato[1, 2], K. Sugimura[2], T. Sato[2], M. Sonehara[2]
([1]Nagano Prefecture General Industrial Technology Center, [2]Shinshu Univ.)

Sep. 5/Room E

Superlattice・Multilayer **13:00 〜14:30** Chair: M. Doi(Tohoku Gakuin Univ.)

5pE-1 Chemical ordering of Fe/Ni films with third-elements
°T. Tashiro[1], M. Mizuguchi[1], T. Koganezawa[2], H. Suzuki[1], Y. Miura[3], M. Tsujikawa[1], M. Shirai[1], K. Takanashi[1]
([1]Tohoku Univ., [2]JASRI/SPring-8, [3]Kyoto Inst. of Tech)

5pE-2 Magnetic Anisotropy and Damping for Co/Ni Epitaxial Superlattices
°T. Seki[1], J. Shimada[1], S. Iihama[1], M. Tsujikawa[1], T. Koganezawa[2], A. Shioda[1], T. Tashiro[1], W. Zhou[1], N. Kikuchi[1], S. Mizukami[1], M. Shirai[1], K. Takanashi[1] ([1]Tohoku Univ., [2]JASRI)

5pE-3 Role of Pt layer for current induced domain wall motion in Pt/[Tb/Co]*n* multilayered wire
°Y. Kurokawa, H. Awano (Toyota Tech. Inst.)

5pE-4 Dependence of saturation field on non-magnetic (NM) metal layer thickness in Fe_3O_4(110)/NM metal/Fe systems
°K. Omori, T. Kawai, T. Yanase, T. Shimada, T. Nagahama (Hokkaido Univ.)

5pE-5 Ferromagnetic resonance of epitaxially-grown magnetic Fibonacci multilayers
°T. Suwa, T. Kodama, A. Yoshida, S. Tomita, N. Hosoito, H. Yanagi (NAIST)

5pE-6 Effect of quantum-well states in Pd layer on magnetic properties of Fe/Pd films
°S. Sakuragi[1], S. Nakahara[1], K. Mochihara[1], M. Sawada[2], T. Sato[1] ([1]Keio Univ., [2]Hiroshima Univ.)

Film fabrication **14:45 〜16:15** Chair: H. Awano(Toyota Tech. Inst.)

5pE-7 Influence of film oxidation on composition and magnetic property in TbFeCo thin films
°R. Hara, N. Suwabe, K. Morita, M. Kobayasi, Y. Yasukawa (Chiba Inst. Tech.)

5pE-8 Effect of bias voltage to mesoporous silica including magnetic metal formed by EASA method
°A. Ichimura, T. Haeiwa (Shinshu Univ.)

5pE-9 Structure and Magnetic Properties of Fe–Co–B Alloy Thin Films Deposited on MgO(001) Substrates
°K. Serizawa[1], R. Ochiai[1], M. Nakamura[1], T. Kawai[1], M. Ohtake[1, 2], M. Futamoto[1], F. Kirino[3], N. Inaba[4]
([1]Chuo Univ., [2]Kogakuin Univ., [3]Tokyo Univ. of Arts, [4]Yamagata Univ.)

5pE-10 Magnetostrictive Behavior of fcc-Co(001) Single-Crystal Films
°T. Kawai[1], M. Ohtake[1, 2], M. Futamoto[1] ([1]Chuo Univ., [2]Kogakuin Univ.)

5pE-11 Faraday effect of Induced transmission filter with Fe, Co films
°M. Miyamoto[1, 2], T. Kubo[1], T. Hanada[2], H. Ihara[2], T. Sato[2], M. Sonehara[2] ([1]Citizen Finedevice, [2]Shinshu Univ.)

5pE-12 Heteroatom doping into graphene by high energy ion irradiation
°S. Entani[1], M. Mizuguchi[2], H. Watanabe[3], H. Naramoto[1], S. Sakai[1] ([1]QST, [2]Tohoku Univ., [3]Kyushu Univ.)

Ferrite **16:30 〜17:45** Chair: T. Nagahama(Hokkaido Univ.)

5pE-13 Cation distribution in $NiFe_2O_4$ epitaxial thin films grown on $MgAl_2O_4$(001)
°M. Matsumoto, Y. Hisamatsu, J. Inoue, S. Sharmin, E. Kita, H. Yanagihara (Univ. of Tsukuba)

5pE-14 Growth and magnetic properties of $Mo_xFe_{3-x}O_4$(001) thin films
°Y. Hisamatsu, S. Sharmin, H. Yanagihara (Univ. of Tsukuba)

5pE-15 Control of epitaxial strain in cobalt-ferrite thin films by various buffer layers
°H. Onoda, Y. Hisamatsu, Jun-ichiro Inoue, S. Sonia, E. Kita, H. Yanagihara (Univ. of Tsukuba)

5pE-16 Observation of RHEED oscillation of $Fe_{3-x}O_4$ (001) thin films deposited by reactive sputtering technique
°T. Ojima, T. Tainosho, S. Sharmin, H. Yanagihara (Univ. of Tsukuba)

5pE-17 Topotactic phase transformation of spinel Fe_3O_4 to FeO with rock salt structure via ion irradiation

°Y. Liu[1], Y. Hisamatsu[1], S. Sharmin[1], D. Oshima[2], T. Kato[2], S. Iwata[2], E. Kita[1], H. Yanagihara[1]
([1]Univ. of Tsukuba, [2]Nagoya Univ.)

Sep. 6/Room A

Symposium "Latest trends in ultra-low power consumption spintronic devices and circuits"
New barrier materials, CPP-GMR, wafer bonding Chief Organizer: S. Mitani(NIMS)
9:00 〜 10:45 Chair: K. Hamaya(Osaka Univ.)

6aA-1 High quality cation-disorder $MgAl_2O_4$(001)-based magnetic tunnel junctions deposited by a direct sputtering technique

M. Belmoubarik, °H. Sukegawa, T. Ohkubo, S. Mitani, K. Hono (NIMS)

6aA-2 High magnetoresistance in fully epitaxial magnetic tunnel junctions with a semiconductor GaO_x barrier

°N. Matsuo[1, 2], N. Doko[1, 2], T. Takada[1], Narayananellore Sai Krishna[1], Y. Yasukawa[2], H. Saito[1], S. Yuasa[1]
([1]AIST, [2]Chiba Inst. Tech.)

6aA-3 Magnetic junctions using a $Cu(In_{0.8}Ga_{0.2})Se_2$ semiconductor spacer and $Co_2Fe(Ga_{0.5}Ge_{0.5})$ electrodes for low-resistance devices

°K. Mukaiyama[1], S. Kasai[1, 2], Y. Takahashi[1], P. Cheng[1, 3], I. Ikhtiar[1, 3], T. Ohkubo[1], K. Kondou[2], Y. Otani[2, 4], S. Mitani[1, 3], K. Hono[1, 3] ([1]NIMS, [2]RIKEN, [3]Univ. of Tsukuba, [4]Univ. of Tokyo)

6aA-4 $Mg_{1-x}Ti_xO$-based magnetic tunnel junctions with CoFeB electrodes

°I. Ikhtiar[1, 2], P. Cheng[1, 2], S. Kasai[1], T. Ohkubo[1], Y. Takahashi[1], T. Furubayashi[1], K. Hono[1, 2] ([1]NIMS, [2]Univ. of Tsukuba)

6aA-5 Enhancement of spin-dependent interfacial scattering by inserting thin NiAl layer at $Co_2Fe(Ge_{0.5}Ga_{0.5})$/Ag interface in current-perpendicular-to-plane pseudo spin valves

°J. Jung[1], Y. Sakuraba[1], T. Sasaki[1], Y. Miura[1, 2], K. Hono[1] ([1]NIMS, [2]Kyoto Inst. of Tech)

6aA-6 Realization of high quality epitaxial current-perpendicular-to-plane giant magnetoresistive pseudo spin-valves on Si(001) wafer using NiAl buffer layer

°J. Chen[1, 2], J. Liu[2], Y. Sakuraba[2], H. Sukegawa[2], S. Li[2], K. Hono[1, 2] ([1]Univ. of Tsukuba, [2]NIMS)

6aA-7 Fabrication of a reversal stacking of a magnetic tunnel junction by wafer bonding and thinning technique

°K. Yakushiji, A. Sugihara, H. Takagi, Y. Kurashima, N. Watanabe, K. Kikuchi, M. Aoyagi, S. Yuasa (AIST)

Symposium "Latest trends in ultra-low power consumption spintronic devices and circuits"
Spin MOSFET, theory of voltage effect on PMA Chief Organizer: S. Mitani(NIMS)
11:00 〜 12:30 Chair: S. Mitani(NIMS)

6aA-8 Germanium spintronics developed by semiconductor technologies (30min.)

°K. Hamaya (Osaka Univ.)

6aA-9 Room-temperature spin accumulation and transport signals in Co_2FeSi/MgO/n^+-SOI devices

°M. Ishikawa[1, 2], A. Tiwari[1], H. Sugiyama[1], T. Inokuchi[1], K. Hamaya[2], N. Tezuka[3], Y. Saito[1]
([1]Toshiba, [2]Osaka Univ., [3]Tohoku Univ.)

6aA-10 Spin injection into Ge using $Co_2(FeMn)Si$ Heusler alloy

°M. Oogane[1], T. Koike[1], A. Ono[1], T. Takada[2], H. Saito[2], Y. Ando[1] ([1]Tohoku Univ., [2]AIST)

6aA-11 Enhancement of electric-field modulation of the magnetic anisotropy at Fe and Co surfaces covered by 5*d* transition-metal monolayer

°M. Tsujikawa, M. Shirai (Tohoku Univ.)

6aA-12 Electric field effect on magnetocrystalline anisotropy, exchange stiffness, and Dzyaloshinskii-Moriya interaction in magnetic metal thin films

°K. Nakamura, K. Nawa, T. Akiyama, T. Ito (Mie Univ.)

Highly spin polarized materials and devices **13:15 〜 14:45** Chair: T. Seki(Tohoku Univ.)

6pA-1 Fabrication of CPP-GMR devices using poly-crystalline Heusler alloy films

°T. Nakatani, S. Li, Y. Sakuraba, T. Furubayashi, K. Hono (NIMS)

6pA-2 Large voltage output in CPP-MR devices using $Co_2Fe(Ga_{0.5}Ge_{0.5})$ Heusler alloy and Mg–Ti–O spacer material

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

6pA-3 Temperature dependence of current perpendicular-to-plane giant magnetoresistance effect in $Co_2Fe_{0.4}Mn_{0.6}Si$/Ag-Mg/$Co_2Fe_{0.4}Mn_{0.6}Si$ devices

°T. Kubota, Y. Ina, K. Takanashi (Tohoku Univ.)

6pA-4 Spacer layer thickness dependence of CPP-GMR effects using half-metallic $Co_2Fe_{0.4}Mn_{0.6}Si$ and $L1_2$ Ag-Mg ordered alloy spacer

°Y. Ina, T. Kubota, K. Takanashi (Tohoku Univ.)

6pA-5 Half-metallicity evaluation of full-Heusler Co_2FeSi alloy films using anisotropic magnetoresistance effect

°M. Sampei, Y. Takamura, S. Nakagawa (Tokyo Inst. Tech.)

6pA-6 Magnetic properties of epitaxially grown NixFe$_{4-x}$N(x = 0, 1, 3, 4) films

°K. Ito[1, 2, 3], K. Kabara[2], F. Takata[1], S. Higashikozono[1], T. Gushi[1], K. Toko[1], M. Tsunoda[2], T. Suemasu[1]

([1]Univ. of Tsukuba, [2]Tohoku Univ., [3]JSPS)

Perpendicular magnetization and related phenomena 15:00 〜 16:00 Chair: T. Kubota(Tohoku Univ.)

6pA-7 Magnetotransport Properties of FePt Alloy-NDs Stacked Structures

T. Kawase, °K. Makihara, T. Kato, A. Ohta, M. Ikeda, S. Iwata, S. Miyazaki (Nagoya Univ.)

6pA-8 Mag-flip spin torque oscillator using highly spin polarized Heusler alloy as spin injection layer for microwave assisted magnetic recording

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

6pA-9 Electric field control of perpendicular magnetic anisotropy in Fe–Pt–Pd alloy films

°S. Kikushima[1], T. Seki[1], K. Uchida[1, 2], E. Saitoh[1, 3, 4], K. Takanashi[1] ([1]Tohoku Univ., [2]JST-PRESTO, [3]JST-ERATO, [4]JAEA)

6pA-10 Adjacent-Layer Material Dependence of Magnetic Properties of CoFeB-MgO system

°K. Watanbe, S. Fukami, H. Sato, F. Matsukura, H. Ohno (Tohoku Univ.)

Perpendicular films and structures 16:15 〜 17:15 Chair: M. Oogane(Tohoku Univ.)

6pA-11 Preparation and evaluation of Co_2FeSi/Mn_3Ge bilayered films with perpendicular magnetic anisotropy

N. Matsushita[1], °T. Yabushita[1], Y. Naganuma[1], Y. Takamura[1], Y. Sonobe[2], S. Nakagawa[1]

([1]Tokyo Inst. Tech., [2]Samsung R&D Institute Japan)

6pA-12 Curie temperature controlled TbFe/GdFeCo hybrid structure for low field magnetization switching

A. Tsukamoto[1], Y. Sonobe[2], °H. Yoshikawa[1] ([1]Nihon Univ., [2]Samsung Research Inst. Jpn.)

6pA-13 Spin Hall switching of perpendicular magnetized GdFeCo films

°T. Matsumura, D. Oshima, T. Kato, S. Iwata (Nagoya Univ.)

6pA-14 Change of magnetic anisotropy of Co_2FeSi/MgO films induced by oxygen exposure at the interface

°K. Shinohara, T. Suzuki, Y. Takamura, S. Nakagawa (Tokyo Inst. Tech.)

Sep. 6/Room B

High frequency・Sensor Ⅰ 9:00 〜 10:45 Chair: T. Uchiyama(Nagoya Univ.)

6aB-1 Co- and Ti-substituted M-type hexaferrites for high frequency applications

°R. Sai[1], M. Yamaguchi[1], S. Takeda[2], S. Yabukami[3], S. Shivashankar[4]

([1]Tohoku Univ., [2]Magnontech, [3]Tohoku Gakuin Univ., [4]Indian Institute of Science)

6aB-2 Analysis of magnetic near field noise suppression of multilayered Co–Zr–Nb film integrated on MSL

°J. Ma, H. Aoki, M. Yamaguchi (Tohoku Univ.)

6aB-3 Basic examination of the composite magnetic core for high Q-factor RF-inductor

°M. Sonehara, Y. Miyajima, T. Sato (Shinshu Univ.)

6aB-4 Consideration of Skin Effect Suppression Mechanism in RF Transmission Line with Negative Permeability Material

°R. Moriyama, Y. Kurokawa, H. Nakayama, Y. Kiyono, R. Yuzawa (Nat. Ins. Tech. Nagano Coll.)

6aB-5 Feasibility of orientation control during forming process for magnetic powder-plastic composites

°H. Okubo, K. Miura, H. Osada (Iwate Univ.)

6aB-6 High Frequency Permeability Measurements of Magnetic Thin Films aiming at 30 GHz band

°S. Takeda[1], M. Naoe[2], T. Hotchi[3], S. Motomura[3], H. Suzuki[3] ([1]Magnontech, [2]DENJIKEN, [3]KEYCOM)

6aB-7 Ferromagnetic resonance and stress of magnetic thin film by microstrip probe
°O. Mori[1], S. Yabukami[2], Y. Endo[3], Y. Shimada[3], R. Utsumi[1]
([1]Toei Scientific Industrial, [2]Tohoku Gakuin Univ., [3]Tohoku Univ.)

High frequency・Sensor II **11:00 〜12:15** Chair: M. Sonehara(Shinshu Univ.)

6aB-8 Terrestrial digital TV broadcast reception antenna for smartphone
°S. Yamamoto, H. Kurisu, M. Yonehara (Yamaguchi Univ.)

6aB-9 Development of active magnetic shielding for MI gradiometer
°T. Takiya, T. Uchiyama (Nagoya Univ.)

6aB-10 MI sensor based on Time Analog to Digital converter(TAD)for Gradiometer
°K. Shi[1], T. Takiya[1], T. Watanabe[2], T. Uchiyama[1] ([1]Nagoya Univ., [2]DENSO)

6aB-11 Development of a planar type high sensitivity metallic contamination detector
°S. Okabe, I. Sasada, H. Karo (Kyushu Univ.)

6aB-12 Magnetic nanoparticle detection system by using fundamental mode orthogonal fluxgate gradiometer
°H. Karo, I. Sasada (Kyushu Univ.)

High frequency・Sensor III **13:00 〜14:45** Chair: S. Hashi(Tohoku Univ.)

6pB-1 Downsizing of Magneto-optical Q-switch Using Magnetic Garnet Films
°R. Morimoto[1], T. Goto[1,2], J. Pritchard[3], H. Takagi[1], Y. Nakamura[1], Pang Boey Lim[1], M. Mina[3], T. Taira[4], M. Inoue[1]
([1]Toyohashi Univ. Tech., [2]JST-PREST, [3]Iowa Univ., [4]IMS)

6pB-2 Magnetic field modulation using Magnetic Flux Concentrator for improving performance of MTJ sensor
°K. Yoshida[1], M. Oogane[1], J. Jono[2], K. Fujiwara[1], M. Tsuchida[2], Y. Ando[1] ([1]Tohoku Univ., [2]Konica Minolta)

6pB-3 AC modulation method of a TMR magnetic sensor
°Y. Majima, T. Yasugi, K. Sakai, T. Kiwa, K. Tsukada (Okayama Univ.)

6pB-4 Improvement of marker detection by magnetic bias for security application
°T. Minamitani, S. Yamada (Kanazawa Univ.)

6pB-5 Development of detection method of metal internal defects by a low-frequency eddy current test
°N. Song, Y. Majima, T. Yasugi, K. Sakai, T. Kiwa, K. Tsukada (Okayama Univ.)

6pB-6 Reduction of amplitude in vibration-type electric generating element using magnetic wire
°A. Takebuchi, T. Yamada, Y. Takemura (Yokohama National Univ.)

6pB-7 Integrated Digital Noise Suppressor by Means of Patterned Magnetic Thin-film
°M. Yamaguchi[1], Y. Endo[1], P. Fan[1], J. Ma[1], S. Tanaka[1], M. Nagata[2] ([1]Tohoku Univ., [2]Kobe Univ.)

High frequency・Sensor IV **15:00 〜16:30** Chair: Y. Endo(Tohoku Univ.)

6pB-8 AC magnetic field measurement using pulse laser burst modulation
°Y. Matsumoto, S. Hashi, K. Ishiyama (Tohoku Univ.)

6pB-9 Possibility of thin-film magnetoimpedance by direct diriven current at MHz region using magnetic domain resonance
°C. Sumida[1], H. Kikuchi[1], H. Uetake[2], S. Yabukami[2], S. Hashi[3], K. Ishiyama[3]
([1]Iwate Univ., [2]Tohoku Gakuin Univ., [3]Tohoku Univ.)

6pB-10 Meandering coplanar line type thin film sensor using direct bias for magnetic film
H. Uetake, K. Moriya, T. Tominami, °S. Yabukami (Tohoku Gakuin Univ.)

6pB-11 Study for improvement of detection ability of position-detecting system using multi excitation coils
°Y. Osaki[1], S. Hashi[1], S. Yabukami[2], H. Kanetaka[1], K. Ishiyama[1] ([1]Tohoku Univ., [2]Tohoku Gakuin Univ.)

6pB-12 Fundamental study of Faraday Effect Enhancement of Fe thin film for optical probe current sensor
°H. Ihara[1], T. Hanada[1], S. Kitazawa[1], T. Kubo[2], M. Miyamoto[2], T. Sato[1], M. Sonehara[1] ([1]Shinshu Univ., [2]CFD)

6pB-13 Fundamental study of optical probe current sensor using Faraday Effect of metallic magnetic thin film
°T. Hanada[1], H. Ihara[1], S. Kitazawa[1], T. Kubo[2], M. Miyamoto[2], T. Sato[1], M. Sonehara[1] ([1]Shinshu Univ., [2]CFD)

Sep. 6/Room C

Joint Symposium "Magnetic Materials Research by Materials Informatics"

Chief Organizer: C. Mitsumata(NIMS)

9:00 〜10:45 Chair: S. Itoh(JST)

6aC-1 Overview of Material Research by Information Integration Initiative (MI2I)
°K. Terakura (NIMS)

6aC-2 Data-Science Approach to Magnetic Materials Exploration (30min.)
°T. Oguchi (Osaka Univ., NIMS)

6aC-3 Computational exploration of new permanent magnet compounds (30min.)
°T. Miyake (AIST, NIMS)

6aC-4 Mining magnetic materials data (30min.)
°D. Hieu Chi (JAIST)

11:00 〜12:15 Chair: T. Oguchi(Osaka Univ.)

6aC-5 Expectation for Materials Informatics in Magnetic Material Research (30min.)
°T. Shoji (TOYOTA Motor)

6aC-6 Opportunities and Challenges for Inorganic Material Informatics from a View Point of Big Data Analytics
°Y. Tanaka (Hokkaido Univ.)

6aC-7 Comments on Materials Informatics from a Researcher in Industry
°T. Nishiuchi (Hitachi Metals)

6aC-8 Perspective
°S. Itoh (JST)

Symposium "Advance and development of photo magnonics" Chief Organizer: H. Awano(Toyota Tech. Inst.)

13:00 〜15:00 Chair: H. Awano(Toyota Tech. Inst.)

6pC-1 Surface Plasmon Polaritons for Magnetic Applications (30min.)
°K. Nakagawa, Y. Ashizawa (Nihon Univ.)

6pC-2 Recent progress in fundamental studies on spin-photonics with magnets, semiconductors and insulators (30min.)
°H. Munekata, N. Nishizawa, K. Nishibayashi (Tokyo Inst. Tech.)

6pC-3 Challenge to magnetization dynamics observation by Kerr microscope with real-time processing of differential-polarization images (30min.)
°S. Meguro[1, 2], S. Saito[2] ([1]NEOARK, [2]Tohoku Univ.)

6pC-4 Artificial Magnetic Lattices and Their Optical and High Frequency Applications (30min.)
°M. Inoue (Toyohashi Univ. Tech.)

15:15 〜17:45 Chair: H. Uchida(Toyohashi Univ. Tech.)

6pC-5 Ultrafast photo manipulation of magnetization and non-local spin dynamics (30min.)
°A. Tsukamoto (Nihon Univ.)

6pC-6 All-optical investigation of coherent magnon propagation in metallic films (30min.)
°S. Mizukami (Tohoku Univ.)

6pC-7 Accumulative magnetic switching of FePt granular media by circularly polarized light (30min.)
°Y. Takahashi[1], R. Medapali[2], S. Kasai[1], J. Wang[1], K. Ishioka[1], S. Wee[3], O. Hellwig[3], K. Hono[1], E. Fullerton[2] ([1]NIMS, [2]UCSD, [3]HGST)

6pC-8 Time-resolved imaging of spin wave transmission through an air gap (30min.)
°T. Satoh[1], I. Yoshimine[2], T. Shimura[3] ([1]Kyushu Univ., [2]AIST, [3]Univ. of Tokyo)

6pC-9 Time resolved magneto-optical Kerr effect and spin transfer torque switching of GdFeCo / TbFe exchange coupled bilayers (30min.)
°T. Kato[1], T. Higashide[1], B. Dai[2], D. Oshima[1], S. Iwata[1] ([1]Nagoya Univ., [2]Harbin Institute of Technology)

Sep. 6/Room D

Power magnetics Ⅲ **9:00 〜10:30** Chair: Y. Yoshida(Akita Univ.)

6aD-1 Fabrication of bonded magnets with 52 % increased flux density via homopolar magnetization
°S. Isogami (Fukushima Nat. Coll. Tech.)

6aD-2 High frequency operation of gate driver using push-pull LC oscillator
N. Ishibashi[1], K. Eshita[1], M. Hirokawa[2], °A. Katsuki[1] ([1]Nagasaki Univ., [2]TDK)

6aD-3 Medical capsule device with cytology brush and expansion anchors
°Y. Yamasaki, T. Honda (Kyushu Inst. Tech.)

6aD-4 Magnetically driven flapping micro mechanism using polyimide torsion bars
°S. Omura, T. Honda (Kyushu Inst. Tech.)

6aD-5 Liquid cooling system for high end laptop incorporating magnetically driven micropumps
°H. Yamada, T. Honda (Kyushu Inst. Tech.)

6aD-6 Magnetic Field Analysis for Micro processing for Internal Circular Pipe Utilizing Magnetic Compound Fluid
°S. Ikeda, H. Yamamoto, N. Mizuno, Y. Sakurai, H. Nishida (NIT, Toyama)

Hard magnetics Ⅰ **10:45 〜12:15** Chair: S. Sugimoto(Tohoku Univ.)

6aD-7 Micromagnetic Simulation Analyses of Magnetization Reversals of Nd–Fe–B Hot-deformed Magnets
°J. Fujisaki[1], A. Furuya[1], Y. Uehara[1], K. Shimizu[1], T. Ataka[1], T. Tanaka[1], H. Oshima[2] ([1]Fujitsu, [2]Fujitsu Labs.)

6aD-8 Temperature dependence of FORC diagrams of Nd–Fe–B hot-deformed magnets
°T. Yomogita[1], N. Kikuchi[1], S. Okamoto[1], O. Kitakami[1], H. Sepehri-Amin[2], T. Ohkubo[2], K. Hono[2], T. Akiya[3], K. Hioki[3], A. Hattori[3] ([1]Tohoku Univ., [2]NIMS, [3]Daido Steel)

6aD-9 Thermal activation analysis on Nd–Fe–B hot-deformed magnets with Pr–Cu grain boundary diffusion process
°L. Zhang[1], S. Okamoto[1,2], T. Yomogita[1], N. Kikuchi[1], O. Kitakami[1], H. Sepehri-Amin[2], T. Ohkubo[2], K. Hono[2], T. Akiya[3], K. Hioki[3], A. Hattori[3] ([1]Tohoku Univ., [2]NIMS, [3]Daido Steel)

6aD-10 Development of high performance sintered Nd–Fe–B permanent magnet suitable for grain-boundary diffusion process.
°T. Hidaka, T. Hayakawa, A. Kakoki, F. Baba, N. Tsukamoto, M. Iwasaki (TDK)

6aD-11 Magnetic properties of (Nd,Y)–Fe–B layered thin film magnets
°R. Hashimoto, K. Suzuki, Y. Enokido, K. Choi (TDK)

6aD-12 Anisotropic magnetic property of Nd_2Fe_{14}/Mo/Fe multilayer films
°K. Kobayashi[1], K. Koike[1], D. Ogawa[1], M. Oogane[2], Y. Ando[2], M. Itakura[3], N. Inaba[1], H. Kato[1] ([1]Yamagata Univ., [2]Tohoku Univ., [3]Kyushu Univ.)

Hard magnetics Ⅱ **13:15 〜15:00** Chair: H. Nakamura(Kyoto Univ.)

6pD-1 Metastable phase YFe_{12} fabricated by a rapidly quenched method
°H. Suzuki (Hitachi)

6pD-2 Structural and magnetic properties of FeCo thin films
°N. Inami[1], T. Ueno[2], T. Hasegawa[3], S. Ishio[3], K. Ono[1] ([1]KEK, [2]NIMS, [3]Akita Univ.)

6pD-3 Tetragonal distortion and magnetic properties of $(Cu,Co)Fe_2O_4$ particles via Jahn-Teller effect
°H. Latiff, M. Kishimoto, S. Sharmin, E. Kita, H. Yanagihara (Univ. of Tsukuba)

6pD-4 Contribution of Co^{2+} and Fe^{2+} to the magnetic anisotropy of M-type Sr ferrite
°Y. Tanioku, H. Morishita, H. Ueda, C. Michioka, K. Yoshimura (Kyoto Univ.)

6pD-5 Magnetic imaging of DC and AC components of magnetization at fractured surface of ferrite magnet by alternating magnetic force microscopy
Y. Cao, G. Egawa, S. Yoshimura, °H. Saito (Akita Univ.)

6pD-6 Study on magnetic properties and local structure of $SrZn_xFe_{2-x}$-W-type hexagonal ferrite
°A. Yonaga[1], T. Nakagawa[1], Y. Kobayashi[2], K. Ota[1], S. Seino[1], T. A. Yamamoto[1] ([1]Osaka Univ., [2]Hitachi Metals)

6pD-7 Preparation and characterization of Mo-substituted Co-ferrite thin films prepared by MOD method
°T. Ikari[1], A. Meguro[1], H. Yanagihara[2], E. Kita[2], T. Ishibashi[1] ([1]Nagaoka Univ. Tech., [2]Univ. of Tsukuba)

Hard magnetics III **15:15 〜17:00** Chair: Y. Kobayashi(Hitachi Metals)

6pD-8 Single crystal growth of La–Co co substituted CaM-type ferrite
°T. Waki, K. Uji, S. Okazaki, Y. Tabata, H. Nakamura (Kyoto Univ.)

6pD-9 Synthesis of La–Co co-substituted SrM ferrite under high O_2 pressure
°S. Okazaki[1], T. Waki[1], Y. Tabata[1], M. Kato[2], K. Hirota[2], H. Nakamura[1] ([1]Kyoto Univ., [2]Doshisha Univ.,)

6pD-10 ^{59}Co NMR Study in La–Co substituted *M*-type Sr Ferrite
°H. Sakai[1], T. Hattori[1], Y. Tokunaga[1], S. Kambe[1], A. Shimoda[2], T. Waki[2], Y. Tabata[2], H. Nakamura[2] ([1]JAEA, [2]Kyoto Univ.)

6pD-11 ^{57}Fe-NMR study of Co-doped M-type strontium ferrites
°K. Takao[1], T. Waki[1], Y. Tabata[1], H. Sakai[2], H. Nakamura[1] ([1]Kyoto Univ., [2]JAEA)

6pD-12 ^{57}Fe Mössbauer spectroscopies studies on La-substituted M-type Sr hexaferrite
°M. Oura[1], N. Nagasawa[1], S. Ikeda[1], A. Shimoda[2], T. Waki[2], Y. Tabata[2], H. Nakamura[2], H. Kabayashi[1]
([1]Univ. Hyogo, [2]Kyoto Univ.)

6pD-13 Preparation of Sr-based ferrite by controlling the oxidation state of Fe
°M. Meguro, K. Kakizaki, K. Kamishima (Saitama Univ.)

6pD-14 Synthesis and magnetic properties of Mg^{2+}–Ti^{4+} substituted $BaFe_{12}O_{19}$
°K. Kamishima, Y. Esashika, K. Kakizaki, M. Sakai (Saitama Univ.)

Sep. 6/Room E

Magnetization dynamics **9:00 〜10:30** Chair: Y. Ashizawa(Nihon Univ.)

6aE-1 Time-resolved hard X-ray MCD measurement on magnetization dynamics of a Co/Pt multilayer dot
°N. Kikuchi[1], T. Yomogita[1], D. Kanahara[1], S. Okamoto[1], O. Kitakami[1], T. Shimatsu[1], H. Osawa[2], M. Suzuki[2]
([1]Tohoku Univ., [2]JASRI/SPring-8)

6aE-2 Time-resolved magneto-optical Kerr effect of $L1_0$-MnGa films irradiated with 30 keV Kr^+ ions
H. Kano[1], °T. Kato[1], D. Oshima[1], S. Takahashi[2], Y. Sonobe[2], S. Iwata[1] ([1]Nagoya Univ., [2]Samsung Research Inst. Jpn.)

6aE-3 Change in Magnetization Dynamics of $Fe_{1-x}Co_x$ Thin films with Co Concentrations
°Y. Endo, S. Oono, T. Miyazaki, Y. Shimada (Tohoku Univ.)

6aE-4 Influence of the transition metal sublattice in $Gd_{23}(Fe_{1-x}Co_x)_{77}$ amorphous alloys for the laser induced magnetization reversal
°S. El Moussaoui, H. Yoshikawa, T. Sato, A. Tsukamoto (Nihon Univ.)

6aE-5 Enhancement of magnetic relaxation in nano grain/continuous magnetic structure
°Y. Futakawa, H. Yoshikawa, A. Tsukamoto (Nihon Univ.)

6aE-6 All - optical magnetization switching in GdFeCo on the different metallic layers
°H. Yoshikawa, S. El Moussaoui, S. Terashita, R. Ueda, A. Tsukamoto (Nihon Univ.)

Spin wave **10:45 〜12:15** Chair: T. Kato(Nagoya Univ.)

6aE-7 Fabrication and characterization of Mn-based Heusler epitaxial thin films for spin-wave devices
°K. Fukuda, M. Oogane, Y. Ando (Tohoku Univ.)

6aE-8 Long range surface plasmon and metalic antenna for spin wave excitation
°S. Yoshihara, T. Matsumoto, Y. Ashizawa, K. Nakagawa (Nihon Univ.)

6aE-9 Development of magnetically stable spin-wave interferometer using yttrium iron garnet
°N. Kanazawa[1], T. Goto[1, 2], H. Takagi[1], Y. Nakamura[1], C. A. Ross[3], A. B. Granovsky[4], K. Sekiguchi[2, 5], M. Inoue[1]
([1]Toyohashi Univ. Tech., [2]JST-PREST, [3]MIT, [4]Moscow State Univ., [5]Keio Univ.)

6aE-10 Standing spin wave resonant properties of spin-twist structure in exchange coupled composite films
°X. Ya, S. Oyabu, T. Tanaka, K. Matsuyama (Kyushu Univ.)

6aE-11 Microwave spectroscopy of single permalloy chiral structure on coplanar waveguide
°T. Kodama[1], Y. Kusanagi[2], S. Okamoto[2], N. Kikuchi[2], O. Kitakami[2], S. Tomita[1], N. Hosoito[1], H. Yanagi[1]
([1]NAIST, [2]Tohoku Univ.)

6aE-12 Propagating Symmetry on Pulse-Laser Induced Spin Wave in 80NiFe Thin Films
°A. Kamimaki, Y. Sasaki, S. Iihama, Y. Ando, S. Mizukami (Tohoku Univ.)

Nano particle・Granular film **13:00 〜14:30** Chair: S. Mitani(NIMS)

6pE-1 Magnetic properties of α''-$Fe_{16}N_2$ magnetic nanoparticles synthesized using various α-FeOOH as raw materials
°M. Tobise, S. Saito (Tohoku Univ.)

6pE-2 SiO_2-coated FeCo alloy nanoparticles prepared by reduction with CaH_2
°S. Yamamoto[1], M. Tsujimoto[2] ([1]AIST, [2]Kyoto Univ.)

6pE-3 Fabrication of α''-$Fe_{16}N_2$ nanoparticles pillar aggregation by using external magnetic field and its high frequency magnetic properties
°Y. Honnami, T. Ogawa (Tohoku Univ.)

6pE-4 Formation of Isolation Dispersion FePt Nanoparticles for Using Mesoporous Ground Layer
°N. Isoda, T. Haeiwa (Shinshu Univ.)

6pE-5 Soft magnetic properties of Zr and Ti added FeCo–$(C_4F_8)_n$ granular thin films deposited on resin substrate
°K. Asada, K. Kamishima, K. Kakizaki (Saitama Univ.)

6pE-6 Structure and magnetoresistance effect of CoFeAlSi–Al_2O_3 granular films
M. Hattori[1], °M. Jimbo[1], Y. Fujiwara[2], T. Shimizu[1] ([1]Daido Univ., [2]Mie Univ.)

Domain structure **14:45 〜16:00** Chair: A. Yamaguchi(Univ. Hyogo)

6pE-7 Simulation for Rapid Formation of Magnetic Domains in Magnetic Nanowire
°M. Kawana, M. Okuda, Y. Miyamoto, E. Miyashita (NHK)

6pE-8 Micromagnetic simulation of domain wall propagation along meandering magnetic strip with spatially modulated material parameters
°Z. Zhang, T. Tanaka, K. Matsuyama (Kyushu Univ.)

6pE-9 Micromagnetics simulation of ferromagnetic chiral structures
°S. Tomita[1], T. Kodama[1], H. Yanagi[1], S. Kasai[2], C. Mitsumata[2] ([1]NAIST, [2]NIMS)

6pE-10 Introducing transversal magnetic anisotropy in magnetic wires and its effect on the magnetic domain configuration
°T. Ikeda, X. Liu (Shinshu Univ.)

6pE-11 Bidirectional shift register based on magnetic quantum cellular automata
°N. Yoshioka, H. Nomura, R. Nakatani (Osaka Univ.)

Magnetic anisotropy Ⅰ **16:15 〜17:15** Chair: J. Okabayashi(Univ. of Tokyo)

6pE-12 Characterization of interface perpendicular magnetic anisotropy in Ta/NiFe/Pt trilayers
°S. Hirayama[1,2], S. Kasai[2], S. Mitani[1,2] ([1]Univ. of Tsukuba, [2]NIMS)

6pE-13 Underlayer-dependent perpendicular magnetic anisotropy of $Co_2Fe_{0.4}Mn_{0.6}Si$ Heuslar alloy ultra-thin films
°M. Sun[1], S. Takahashi[2], T. Kubota[1], A. Tsukamoto[3], Y. Sonobe[2], K. Takanashi[1]
([1]Tohoku Univ., [2]Samsung Research Inst. Jpn., [3]Nihon Univ.)

6pE-14 Magnetic anisotropy of garnet films fabricated by metal organic decomposition method
°H. Saito, Y. Ashizawa, K. Nakagawa (Nihon Univ.)

6pE-15 Uniaxial magnetic anisotropy and orbital angular momentum of spinel-ferrite thin films
°J. Inoue[1,2], T. Tainosho[1], M. Matsumoto[1], H. Yanagihara[1], E. Kita[1] ([1]Univ. of Tsukuba, [2]Tohoku Univ.)

Sep. 7/Room A

Symposium "Research trends in permanent magnet motors and permanent magnets from marginally hard magnetic phases"
Chief Organizer: S. Hirosawa(NIMS)

9:00 〜10:15 Chair: K. Hono(NIMS)

7aA-1 Theoretical study on the finite temperature magnetism of rear earth permanent magnets (30min.)
°A. Sakuma[1], D. Miura[1], R. Sasaki[1], Y. Toga[2] ([1]Tohoku Univ., [2]NIMS)

7aA-2 Monte Carlo analysis for finite temperature magnetism of $Nd_2Fe_{14}B$ magnet
°Y. Toga[1], M. Matsumoto[1], S. Miyashita[2], H. Akai[2], S. Doi[2], T. Miyake[3], A. Sakuma[4]
([1]NIMS, [2]Univ. of Tokyo, [3]AIST, [4]Tohoku Univ.)

7aA-3 Exchange-coupling engineering in rare-earth permanent-magnet compounds to improve the high-temperature magnetic anisotropy
°M. Matsumoto[1], Y. Harashima[1,2], T. Miyake[1,2], C. Mitsumata[1] ([1]NIMS, [2]AIST)

7aA-4 Analysis of Magnetization Reversal Mechanism in Nd–Fe–B Magnets

°T. Yoshioka, H. Tsuchiura (Tohoku Univ.)

10:30 〜11:45 Chair: S. Hirosawa(NIMS)

7aA-5 Analyses on magnetization reversal process of Nd–Fe–B hot-deformed magnets (30min.)

°S. Okamoto[1], T. Yomogita[1], L. Zhang[1], N. Kikuchi[1], O. Kitakami[1], H. Sepehri-Amin[2], T. Ohkubo[2], K. Hono[2], T. Akiya[3], K. Hioki[3], A. Hattori[3] ([1]Tohoku Univ., [2]NIMS, [3]Daido Steel)

7aA-6 Dynamics of magnetization reversal in atomistic models of $Nd_2Fe_{14}B$ magnets by the Stochastic Landau-Lifshitz-Gilbert equation

°M. Nishino[1], S. Miyashita[2] ([1]NIMS, [2]Univ. of Tokyo)

7aA-7 Influence of microchemistry and interface structure of cell boundary phase on the coercivity of $Sm(Co_{0.78}Fe_{0.10}Cu_{0.09}Zr_{0.03})_{7.19}$ sintered magnets

°H. Sepehri-Amin[1], J. Thielsch[2], T. Ohkubo[1], J. Fischbacher[3], T. Schrefl[3], O. Gutfleisch[4], K. Hono[1] ([1]NIMS, [2]IFW Dresden, [3]Danube University Krems, [4]Technical University of Darmstadt)

7aA-8 Effects of deterioration of grain surface-layer and grain boundary on magnetic property for neodymium permanent magnet

°F. Akagi[1], Y. Sakai[1], Y. Honkura[2] ([1]Kogakuin Univ., [2]Magnedesign)

Sep. 7/Room B

Magnetic imaging **9:00 〜10:15** Chair: A. Tsukamoto(Nihon Univ.)

7aB-1 MO Kerr effect sensing system for simultaneous detection of local magnetization components along perpendicular/in-plane to the film plane

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

7aB-2 Development of high-sensitive amorphous FeCoSiB soft magnetic tip by magnetic field annealing for high resolution alternating magnetic force microscopy

°Y. Akaishi, Srinivasa Rao Kapa, G. Egawa, S. Yoshimura, H. Saito (Akita Univ.)

7aB-3 Development of magnetic imaging for fractured surface of permanent magnets by alternating magnetic force microscopy with superparamagnetic tip

Y. Cao, G. Egawa, S. Yoshimura, °H. Saito (Akita Univ.)

7aB-4 Development of MO imaging plate for colour imaging.

°Y. Nagakubo, Q. Liu, G. Lou, T. Ishibashi (Nagaoka Univ. Tech.)

7aB-5 XMCD micro-spectroscopy of a permanent magnet using a scanning transmission X-ray microscope

°T. Ueno[1, 2], A. Hashimoto[2], Y. Takeichi[2], K. Ono[2] ([1]NIMS, [2]KEK)

Magnetic recording・$L1_0$ alloy **10:30 〜12:00** Chair: D. Oshima(Nagoya Univ.)

7aB-6 Surface segregation of Pt in $L1_0$-FePt nano-grains

°H. Sepehri-Amin[1], H. Iwama[2], T. Shima[2], K. Hono[1] ([1]NIMS, [2]Tohoku Gakuin Univ.)

7aB-7 Silica particle diameter deviation dependency of high density isolated $L1_0$-FePt grains on nano structured under layer

°T. Makino, T. Hiraga, A. Tsukamoto (Nihon Univ.)

7aB-8 The role of heating of Si substrate in rapid fabrication FeCuPt nano grains by lamp annealing

°M. Tanaka, A. Tsukamoto (Nihon Univ.)

7aB-9 Influence of Cap-Layer on the Structure of FePt Alloy Thin Films Formed on Single-Crystal Substrates

°M. Nakamura[1], R. Ochiai[1], M. Ohtake[1, 2], M. Futamoto[1], F. Kirino[3], N. Inaba[4] ([1]Chuo Univ., [2]Kogakuin Univ., [3]Tokyo Univ. of Arts, [4]Yamagata Univ.)

7aB-10 Influence of Lattice Mismatch with Substrate on the Structure of FePd Alloy Thin Film

°M. Nakamura[1], R. Ochiai[1], M. Ohtake[1, 2], M. Futamoto[1], F. Kirino[3], N. Inaba[4] ([1]Chuo Univ., [2]Kogakuin Univ., [3]Tokyo Univ. of Arts, [4]Yamagata Univ.)

7aB-11 Effect of CrB insertion on the (001) texture of MgO seed layer and magnetic properties of FePt-C HAMR media

°J. Wang[1], Y. Takahashi[1], K. Yakushiji[2], H. Sepehri-Amin[1], H. Kubota[2], K. Hono[1] ([1]NIMS, [2]AIST)

Microwave assisted magnetic recording **13:00 〜14:00** Chair: T. Tanaka(Kyushu Univ.)

7pB-1 Resonant interaction between spin-torque oscillator and recording media: Micromagnetic study of readout method using magnetic resonance
°T. Kanao, H. Suto, K. Kudo, T. Nagasawa, M. Yamagishi, K. Mizushima, R. Sato (Toshiba)

7pB-2 Magnetization Excitation and Switching of a Perpendicularly Magnetized ECC Nanodot in a Microwave Magnetic Field: Analysis Using Diode Effect
°H. Suto, T. Nagasawa, K. Kudo, T. Kanao, K. Mizushima, R. Sato (Toshiba)

7pB-3 Magnetization switching of a ferrimagnetic amorphous Gd–Fe–Co single dot under an assistance of rf field
°Y. Lu, S. Okamoto, N. Kikuchi, B. Lao, Y. Kusanagi, O. Kitakami (Tohoku Univ.)

7pB-4 Micromagnetic analysis of tri-layered STO comprising SIL-FGL-SIL for MAMR
°Y. Kanai[1], R. Itagaki[1], K. Yoshida[2], S. Greaves[3], H. Muraoka[3] ([1]Niigata Inst. Tech., [2]Kogakuin Univ., [3]Tohoku Univ.)

Sep. 7/Room C

Symposium "Recent progress in spin-dependent transport phenomena and devices"

Chief Organizer: H. Sukegawa(NIMS)

9:00 〜10:00 Chair: H. Saito(AIST)

7aC-1 Half-metallic Heusler compounds: Spin-dependent transport properties in thin films and magnetoresistive devices (30min.)
°Y. Sakuraba[1], T. Nakatani[1], T. Furubayashi[1], T. Sasaki[1], Y. Miura[1, 2], Y. Takahashi[1], K. Hono[1] ([1]NIMS, [2]Kyoto Inst. of Tech)

7aC-2 Development of High-Resolution TMR Sensor Device for Application of Bio-Magnetic Field Measurement (30min.)
°J. Jono[2], K. Fujiwara[1], M. Oogane[1], M. Tsuchida[2], Y. Ando[1] ([1]Konica Minolta, [2]Tohoku Univ.)

10:15 〜12:15 Chair: H. Sukegawa(NIMS)

7aC-3 Evolution of synchronization in spin torque oscillators (30min.)
°S. Tsunegi, K. Yakushiji, A. Fukushima, S. Yuasa, H. Kubota (AIST)

7aC-4 Spin Torque Oscillations in Giant Magnetoresistance Devices with Heusler Alloys (30min.)
°T. Yamamoto[1], T. Seki[1, 2, 3], K. Takanashi[1, 3] ([1]IMR, Tohoku Univ., [2]JST-PREST, [3]CSRN, Tohoku Univ.)

7aC-5 Spin injection, transport and detection technology in ferromagnet/MgO/Si devices (30min.)
°Y. Saito, M. Ishikawa, T. Ajay, H. Sugiyama, T. Inokuchi (Toshiba)

7aC-6 Recent Progress in Silicon-based Spintronics Devices (30min.)
°H. Koike[1], Y. Ando[2], S. Miwa[3], Y. Suzuki[3], M. Shiraishi[2] ([1]TDK, [2]Kyoto Univ., [3]Osaka Univ.)

Magnetic tunnel junction **13:00 〜14:00** Chair: S. Fukami(Tohoku Univ.)

7pC-1 Tunnel Magneto-resistance Properties in Magnetic Tunnel Junctions with Amorphous CoFeSiB Electrode in Low Magnetic Field
°D. Kato[1], M. Oogane[1], K. Fujiwara[1], Y. Arai[1], J. Jono[2], H. Naganuma[1], M. Tsuchida[2], Y. Ando[1] ([1]Tohoku Univ., [2]Konica Minolta)

7pC-2 Room temperature large magnetocapacitance effect in magnetic tunnel junctions
°H. Kaiju[1], M. Takei[1], T. Misawa[1], T. Nagahama[1], J. Nishii[1], G. Xiao[2] ([1]Hokkaido Univ., [2]Brown Univ.)

7pC-3 Fabrication of tunnel magnetoresistance devices using Fe_3O_4 electrode and MgO barrier
°Y. Yamamoto, S. Sasaki, T. Yanase, T. Shimada, T. Nagahama (Hokkaido Univ.)

7pC-4 MR effect in MTJ with ferromagnetic insulator
°K. Sate, H. Itoh, S. Honda (Kansai Univ.)

Sep. 7/Room D

Symposium "Recent Progress in Magnetic Alignment Techniques"

Chief Organizer: S. Horii(Kyoto Univ.)

9:00 〜10:15 Chair: A. Sugiyama(Waseda Univ.)

7aD-1 Magnetic alignment: method and its applications to structure analyses (45min.)
°T. Kimura (Kyoto Univ.)

7aD-2 Liquid Crystal Electrochemical Polymerization under Magnetic Field (30min.)
°H. Goto (Univ. of Tsukuba)

10:30 〜12:00 Chair: S. Horii(Kyoto Univ.)

7aD-3 Control of crystallographic orientation in bulk ceramics by colloidal processing in a high magnetic field (30min.)
°T. Suzuki (NIMS)

7aD-4 Micro-domain control toward new lasers (30min.)
°T. Taira (NINS)

7aD-5 Crystal alignment by imposing a magnetic field during solidification (30min.)
°K. Iwai[1], T. Hagio[1, 2] ([1]Hokkaido Univ., [2]Nagoya Inst. Tech.)

13:00 〜14:00 Chair: N. Hirota(NIMS)

7pD-1 Effect on unsteady flow on a particle orientation process in rotating container under high magnetic field (30min.)
°T. Ando[1], N. Hirota[2], M. Inoue[1], R. Jonishi[2] ([1]Nihon Univ., [2]NIMS)

7pD-2 Measurement and control of biological microcrystals by magnetic field and light (30min.)
°M. Iwasaka (Hiroshima Univ.)

Sep. 7/Room E

Magnetic anisotropy II **9:30 〜10:45** Chair: H. Yanagihara(Univ. of Tsukuba)

7aE-1 Study of perpendicular magnetic anisotropy change of Fe ultrathin film induced by interfacial spin-orbit interaction
°S. Yamamoto[1], K. Yamamoto[1], K. Takubo[1], K. Fukuta[2], D. Oshima[2], T. Kato[2], S. Iwata[2], H. Wadati[1], I. Matsuda[1]
([1]Univ. of Tokyo, [2]Nagoya Univ.)

7aE-2 Magnetization switching behavior of a TbCo amorphous perpendicular magnetic anisotropy film dominated by orbital magnetic moment
°M. Adachi[1], A. Shibayama[1], K. Suzuki[1], H. Sakurai[1], X. Liu[2], A. Agui[3] ([1]Gumma Univ., [2]Shinshu Univ., [3]QST)

7aE-3 Spin/orbital specific magnetization measurement for CoFeB/MgO multilayers
°A. Shibayama[1], M. Yamazoe[1], T. Kato[1], K. Suzuki[1], M. Adachi[1], K. Hoshi[1], M. Itou[2], Y. Sakurai[2], H. Sakurai[1]
([1]Gumma Univ., [2]JASRI/SPring-8)

7aE-4 Anisotropic orbital magnetic moments in Co/Pd multilayers
°J. Okabayashi[1], H. Munekata[2] ([1]Univ. of Tokyo, [2]Tokyo Inst. Tech.)

7aE-5 Effect of seed layer in nucleation field and domain wall coercive force in Co/Ni multilayer with perpendicular magnetic anisotropy
°R. Yoshioka, K. Taura, T. Tanaka, K. Matsuyama (Kyushu Univ.)

Magnetization mechanism **11:00 〜12:00** Chair: K. Matsuyama(Kyushu Univ.)

7aE-6 Coercivity Mechanism Derived from Alignment Dependence of Coercivity
°Y. Matsuura (Research Institute for Applied Sciences)

7aE-7 Large-scale micromagnetics simulation for initial magnetization process of hot-deformed permanent magnet
°H. Tsukahara[1], K. Iwano[1], C. Mitsumata[2], K. Ono[1] ([1]KEK, [2]NIMS)

7aE-8 Maximum Likelihood Decision of reconstruction of magnetic domain structure
°M. Tokii[1], E. Kita[1, 2], C. Mitsumata[3], K. Ono[4], H. Yanagihara[1], M. Matsumoto[1]
([1]Univ. of Tsukuba, [2]Ibaraki Nat. Coll. Tech, [3]NIMS, [4]KEK)

7aE-9 Magnetic Domain structure induced on nanomicromagnets on a $LiNbO_3$ substrate
°A. Yamaguchi[1], T. Ohkochi[2], A. Yasui[2], T. Kinoshita[2], T. Nakajima[1], K. Yamada[3]
([1]Univ. Hyogo, [2]JASRI/SPring-8, [3]Gifu Univ.)

Magnetostriction **13:00 〜13:45** Chair: C. Mitsumata(NIMS)

7pE-1 Magnetostriction and magnetic anisotropy: phenomenology and electron theory
°Jun-ichiro Inoue[1, 2], T. Yoshioka[1], H. Tsuchiura[1] ([1]Tohoku Univ., [2]Univ. of Tsukuba)

7pE-2 Investigation of development of anisotropic stress in Ru/FeCoB film during film growth
°M. Nakagome, Y. Takamura, S. Nakagawa (Tokyo Inst. Tech.)

7pE-3 Fablication of $SmFe_2$ thin films with negative giant magntostriction and evaluation of inverse magnetostrictive effect
°M. Tomita, Y. Ishitani, Y. Takamura, S. Nakagawa (Tokyo Inst. Tech.)

Sep. 8/Room A

Symposium "IEEJ-MSJ Joint Symposium on research trends in permanent magnet motors and permanent magnets"
Chief Organizer: S. Hirosawa(NIMS)

9:00 〜10:30 Chair: K. Fujisaki(Toyota Tech. Inst.)

8aA-1 Variable magnetic field technology and permanent magnet characteristic by the request of electric traction motors (30min.)
°H. Nakai (TOYOTA Central R&D Labs.)

8aA-2 Development of Measurement Technique of Three-dimensional Demagnetization Distribution in Permanent Magnets for Motors (30min.)
°Y. Asano, S. Araki, A. Yamagiwa (MagHEM)

Chair: T. Nishiuchi(Hitachi Metals)

8aA-3 Grain size refinement of Nd-Fe-B sintered magnets (30min.)
°Y. Une, H. Kubo, T. Mizoguchi, T. Iriyama, M. Sagawa (Intermetallics)

10:45 〜12:15 Chair: S. Sugimoto(Tohoku Univ.)

8aA-4 Newly developed $(R,Zr)(Fe,Co)_{12-x}Ti_x$–N_y compounds for permanent magnets (y=1.3 for R=Nd, y=0 for R=Sm) (30min.)
°K. Kobayashi, S. Suzuki, T. Kuno, K. Urushibata (SIST)

8aA-5 Research trends for the high-performance La–Co substituted M type ferrite magnets (30min.)
°Y. Kobayashi (Hitachi Metals)

Chair: T. Mizuno(Shinshu Univ.)

8aA-6 Observations of Coercivity in RE–Fe–B Magnets in Pulsed Fields up to 30T (30min.)
°K. Yamada[2], K. Nakahata[1], H. Shimoji[3], M. Enokizono[4]
([1]Oita Advance Technical Academy, [2]Saitama Univ., [3]Oita Pref. Industrial Research Institute, [4]Oita Univ.)

Symposium "Research trends in permanent magnet motors and permanent magnets from marginally hard magnetic phases"
Chief Organizer: S. Hirosawa(NIMS)

13:00 〜14:00 Chair: K. Ozaki(AIST)

8pA-1 Switching of bulk single particle in $Tb_2Fe_{14}B$/Fe core-shell system — magnetic hardening by exchange coupling with Fe —
°H. Kato[1], R. Sakaguchi[1], M. Itakura[2], D. Ogawa[1], K. Koike[1], Y. Ando[3] ([1]Yamagata Univ., [2]Kyushu Univ., [3]Tohoku Univ.)

8pA-2 First principles study on effect of stabilizing element M in $NdFe_{11}M$
°Y. Harashima[1, 2], K. Terakura[2], H. Kino[2], S. Ishibashi[1], T. Miyake[1, 2] ([1]AIST, [2]NIMS)

8pA-3 Temperature-dependence of Nd magnetic moment in a $NdFe_{12}N_x$ thin film by X-ray magnetic circular dichroism
°Y. Hirayama[1], T. Nakamura[2], Y. Takahashi[1], S. Hirosawa[1], K. Hono[1] ([1]NIMS, [2]JASRI/SPring-8)

8pA-4 In-situ high temperature neutron diffraction study of isotropic Nd–Fe–B sintered magnet
°K. Saito[1], K. Ono[1], S. Harjo[2], T. Fukugawa[3], T. Nishiuchi[3] ([1]KEK, [2]JAEA, [3]Hitachi Metals)

14:15 〜15:45 Chair: T. Nishiuchi(Hitachi Metals)

8pA-5 Preparation of Rare-earth-saved hard magnetic materials (30min.)
°M. Matsuura, N. Tezuka, S. Sugimoto (Tohoku Univ.)

8pA-6 Fabrication of tetragonal FeCo based alloy films with uniaxial magnetic anisotropy to develop an innovative permanent magnet
°S. Ishio, T. Hasegawa (Akita Univ.)

8pA-7 Artificial fabrication and characterization of $L1_0$-FeNi thin films for rare-earth-free permanent magnets
°M. Mizuguchi, T. Kojima, T. Tashiro, K. Takanashi (Tohoku Univ.)

8pA-8 A Theoretical Approach to synthesize $L1_0$ type FeNi Alloy Powder
°Y. Hayashi[1], S. Goto[1], E. Watanabe[1], H. Kura[1], H. Yanagihara[2], E. Kita[3], M. Mizuguchi[4], K. Takanashi[4]
([1]DENSO, [2]Univ. of Tsukuba, [3]Ibaraki Nat. Coll. Tech, [4]Tohoku Univ.)

8pA-9 A New Route to Synthesize $L1_0$-type FeNi Alloy Powder
°S. Goto[1], Y. Hayashi[1], E. Watanabe[1], H. Kura[1], H. Yanagihara[2], M. Mizuguchi[3], K. Takanashi[3], E. Kita[4]
([1]DENSO, [2]Univ. of Tsukuba, [3]Tohoku Univ., [4]Ibaraki Nat. Coll. Tech)

16:00 〜17:45 Chair: S. Sugimoto(Tohoku Univ.)

8pA-10 Relationship between microstructure and anisotropy of Nd-Fe-B magnetic powder prepared by d-HDDR
°M. Yamazaki[1, 2], T. Horikawa[2, 3], C. Mishima[2, 3], M. Matsuura[1], N. Tezuka[1], S. Sugimoto[1]
([1]Tohoku Univ., [2]Aichi Steel, [3]MagHEM)

8pA-11 Magnetic properties of Sm–Fe–N/Zn powders prepared by arc plasma deposition
°Y. Nishijima, M. Matsuura, N. Tezuka, S. Sugimoto (Tohoku Univ.)

8pA-12 Micostructure-coercivity relationship in Nd-rich Ga-doped Nd–Fe–B sintered magnets
°T. Sasaki[1], T. Ohkubo[1], Y. Takada[2], T. Sato[2], A. Kato[3], Y. Kaneko[2], K. Hono[1]
([1]NIMS, [2]TOYOTA Central R&D Labs., [3]TOYOTA Motor)

8pA-13 Scanning soft X-ray magnetic circular dichroism imaging of the changes in magnetic domain structure in Nd–Fe–B sintered magnets throughout the demagnetisation process
°D. Billington[1], K. Toyoki[1], Y. Kotani[1], H. Okazaki[1], A. Yasui[1], W. Ueno[1], S. Hirosawa[2], T. Nakamura[1, 2]
([1]JASRI/SPring-8, [2]NIMS)

8pA-14 Domain structure of exchange-coupled and exchange-decoupled Nd–Fe–B sintered magnets
°M. Soderznik[1], H. Sepehri-Amin[1], T. Sasaki[1], T. Ohkubo[1], Y. Takada[2], T. Sato[2], Y. Kaneko[2], A. Kato[3], K. Hono[1]
([1]NIMS, [2]TOYOTA Central R&D Labs., [3]TOYOTA Motor)

8pA-15 Coercivity enhancement of hot-deformed Nd–Fe–B magnets by the eutectic grain boundary diffusion process
°L. Liu[1, 2], H. Sepehri-Amin[1], M. Yano[3], A. Kato[3], T. Shoji[3], T. Ohkubo[1], K. Hono[1, 2]
([1]NIMS, [2]Univ. of Tsukuba, [3]TOYOTA Motor)

8pA-16 Coercivity enhancement in hot deformed Nd–Fe–B magnets processed from amorphous precursors
°X. Tang[1, 2], H. Sepehri-Amin[1], T. Ohkubo[1], K. Hioki[3], A. Hattori[3], K. Hono[1, 2] ([1]NIMS, [2]Univ. of Tsukuba, [3]Daido Steel)

Sep. 8/Room B

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

8aB-1 Effect of oxide boundary materials on magnetic properties and microstructure of CoPt-based granular media
°K. Tham[1], R. Kushibiki[1], S. Hinata[2], S. Saito[2] ([1]TANAKA, [2]Tohoku Univ.)

8aB-2 Measurement of Coercive Force and Residual Coercive Force Using Magneto-optical Kerr Effect
°T. Miyajima, H. Endo, Y. Suzuki (Nihon Univ.)

8aB-3 Galvanomagnetic effect of rare earth-transition metal ferrimagnets
°Y. Kasatani, H. Yoshikawa, A. Tsukamoto (Nihon Univ.)

8aB-4 Ion-irradiation patterning of (001) oriented MnGa film grown on Si substrate
°T. Ishikawa, T. Negoro, D. Oshima, T. Kato, S. Iwata (Nagoya Univ.)

8aB-5 Fabrication of MnGa bit patterned structure by low energy Kr^+ ion irradiation
°K. Fukuta, T. Matsunaga, D. Oshima, T. Kato, S. Iwata (Nagoya Univ.)

8aB-6 Temperature dependence of magnetic properties of ion-irradiated MnGa films
°D. Oshima, T. Kato, S. Iwata (Nagoya Univ.)

Magnetic recording・theory **10:45 〜12:30** Chair: Y. Kanai(Niigata Inst. Tech.)

8aB-7 Atomistic simulation of heat assisted linear reversal mode in nano-dots with perpendicular anisotropy
°Y. Wang, T. Tanaka, K. Matsuyama (Kyushu Univ.)

8aB-8 Recording conditions for high-speed response of isolated magnetization transition
°Y. Hirokawa, H. Muraoka (Tohoku Univ.)

8aB-9 Magnetization switching time of graded anisotropy recording media
°N. Akitaya, H. Muraoka, S. Greaves (Tohoku Univ.)

8aB-10 A new model calculation for HAMR (1)
°F. Inukai, K. Enomoto, T. Kobayashi, Y. Fujiwara (Mie Univ.)

8aB-11 A new model calculation for HAMR – recording time window – (2)
°K. Enomoto, F. Inukai, T. Kobayashi, Y. Fujiwara (Mie Univ.)

8aB-12 A new model calculation for HAMR – Curie temperature variation – (3)
°K. Enomoto, F. Inukai, T. Kobayashi, Y. Fujiwara (Mie Univ.)

8aB-13 A new model calculation for HAMR – Curie temperature variation – (4)
°F. Inukai, K. Enomoto, T. Kobayashi, Y. Fujiwara (Mie Univ.)

Sep. 8/Room C

Spin injection・Spin caloritronics **9:00 〜10:15** Chair: Y. Sakuraba(NIMS)

8aC-1 Spin transport in thermally-evaporated pentacene films by using a dynamical spin injection method
°E. Shikoh, Y. Tani, Y. Teki (Osaka City Univ.)

8aC-2 Thermal transport and efficient thermal spin injection in CoFeAl film
°T. Nomura, T. Ariki, G. Uematsu, T. Kimura (Kyushu Univ.)

8aC-3 Development of efficienct dynamical thermal spin injection based on FMR heating
°K. Yamanoi, Y. Yokotani, T. Kimura (Kyushu Univ.)

8aC-4 Anomalous Nernst Effect in Epitaxial Co/Ni Multilayer Thin Films
°H. Suzuki, M. Mizuguchi, K. Takanashi (Tohoku Univ.)

8aC-5 Dependence of anomalous-Nernst effect on crystal orientation in pseudo mono-crystalline Fe_4N thin films
°S. Isogami[1], M. Mizuguchi[2], K. Takanashi[2] ([1]Fukushima Nat. Coll. Tech., [2]Tohoku Univ.)

Nano wire・Magnetic film **10:30 〜12:00** Chair: Y.K. Takahashi(NIMS)

8aC-6 Measurement of non-reciprocal electrical conductivity in chiral structures of ferromagnetic metal
°K. Murakami, T. Kodama, S. Tomita, N. Hosoito, H. Yanagi (NAIST)

8aC-7 Study on Recording Head-Magnetic Nanowire Spacing for Formation of Stable Magnetic Domains in [Co/Pd] Nanowire
°M. Okuda, M. Kawana, Y. Miyamoto (NHK)

8aC-8 Magnetic field modulation writing in RE-TM magnetic nano wires with a nano imprinted plastic substrate
°S. Sumi, R. Yoshimura, A. Moribayashi, Y. Kurokawa, H. Awano (Toyota Tech. Inst.)

8aC-9 Nd–Fe–B film magnets deposited on Si substrates with Nd under-layer
°Y. Chikuba, A. Yamashita, T. Yanai, M. Nakano, H. Fukunaga (Nagasaki Univ.)

8aC-10 Various properties of Pr–Fe–B thick films deposited on glass substrate for the application of MEMS
°K. Hirotaki, T. Yanai, M. Nakano, H. Fukunaga (Nagasaki Univ.)

8aC-11 Microstructure and magnetic properties of Pr–Fe–B nano-composite film magnets prepared using laser deposition technique with a multi-target
°A. Yamashita, A. Kurosaki, T. Yanai, M. Nakano, H. Fukunaga (Nagasaki Univ.)

***L*1$_0$-ordered alloy film** **13:00 〜14:30** Chair: M. Mizuguchi(Tohoku Univ.)

8pC-1 Magnetic phase diagram of $L1_0$ (FeMn)Pt films
°T. Hasegawa, K. Ito, H. Nakane, S. Ishio (Akita Univ.)

8pC-2 Influence of lattice distortion on the magnetic properties of $L1_0$ FePt thin films.
°H. Nakane, T. Hasegawa, S. Ishio (Akita Univ.)

8pC-3 Influence of Underlayer Material and Crystallographic Quality on the Structure of FePt Alloy Thin Film
°T. Shimizu[1], M. Nakamura[1], R. Ochiai[1], M. Ohtake[1, 2], M. Futamoto[1], F. Kirino[3], N. Inaba[4]
([1]Chuo Univ., [2]Kogakuin Univ., [3]Tokyo Univ. of Arts, [4]Yamagata Univ.)

8pC-4 Fabrication and their magnetic properties of $L1_0$-Mn_xGa epitaxial thin films
°Y. Takahashi, G. Teshirogi, T. Shima, M. Doi (Tohoku Gakuin Univ.)

8pC-5 Magnetic properties dependence on size of $L1_0$-MnGa circular dots
°H. Makuta, Y. Takahashi, T. Shima, M. Doi (Tohoku Gakuin Univ.)

8pC-6 Magnetic Properties of $L1_0$-MnAl Thin Films for Perpendicular Magnetic Tunnel Junctions
°K. Watanabe, M. Oogane, M. Kubota, Y. Ando (Tohoku Univ.)

Exchange coupling・Layered film **14:45 〜16:15** Chair: T. Taniyama(Tokyo Inst. Tech.)

8pC-7 Exchange bias field of epitaxially grown Mn_2VAl/Fe bilayers
°T. Tsuchiya, R. Kobayashi, T. Kubota, K. Takanashi (Tohoku Univ.)

8pC-8 Time dependence of exchange coupling field H_{ex} in IrMn/CoCr exchange coupled film
°T. Yamauchi, H. Endo, Y. Suzuki (Nihon Univ.)

8pC-9 Magnetization Switching of exchange coupled bilayers with low Curie temperature CoPd/Pd multilayers
°X. Dong[1], D. Oshima[1], T. Kato[1], Y. Sonobe[2], S. Iwata[1] ([1]Nagoya Univ., [2]Samsung Research Inst. Jpn.)

8pC-10 Fabricating FeCoB/$SmCo_5$ film prepared by Facing Target Sputtering
°J. Tanaka, Y. Takamura, S. Nakagawa (Tokyo Inst. Tech.)

8pC-11 Structural Characterization of Epitaxial FePt/Co and FePd/Co Bilayer Films
°R. Ochiai[1], M. Nakamura[1], M. Ohtake[1, 2], M. Futamoto[1], F. Kirino[3], N. Inaba[4]
([1]Chuo Univ., [2]Kogakuin Univ., [3]Tokyo Univ. of Arts, [4]Yamagata Univ.)

8pC-12 Effects of Cap-Layer Material and Thickness on the Structure of FePt Alloy Thin Film
°M. Ohtake[1, 2], M. Nakamura[1], M. Futamoto[1], F. Kirino[3], N. Inaba[4]
([1]Chuo Univ., [2]Kogakuin Univ., [3]Tokyo Univ. of Arts, [4]Yamagata Univ.)

Sep. 8/Room D

Medical・Biotechnology Ⅰ **9:15 〜10:30** Chair: M. Kakikawa(Kanazawa Univ.)

8aD-1 Relaxation of magnetic nanoparticles and inductive heating using a pancake-type applicator
°T. Aoto[1], K. Takahashi[1], H. Hoshiyama[1], Y. Yoshioka[1], T. Yamada[1], S. Ota[2], Y. Ikehata[3], S. Yamada[3], Y. Takemura[1]
([1]Yokohama National Univ., [2]Shizuoka Univ., [3]Kanazawa Univ.)

8aD-2 Evaluation in magnetic relaxation of magnetic nanoparticle influenced by its condition
°S. Ota[1], N. Ohashi[1], S. Latha[2], C. Prabu[2], P. Selvamani[2], Y. Takemura[3]
([1]Shizuoka Univ., [2]Anna University, [3]Yokohama National Univ.)

8aD-3 Development of Single-Sided Magnetic Particle Imaging system
°K. Yamamoto, T. Sasayama, M. Matsuo, T. Yoshida, K. Enpuku (Kyushu Univ.)

8aD-4 Intensity and Frequency Dependence of AC Magnetization Characteristics of Magnetic Nanoparticles
°T. Sasayama, T. Yoshida, K. Enpuku (Kyushu Univ.)

8aD-5 Measurement of magnetization dynamics in superparamagnetic nanoparticle depended on field frequency and intensity
°S. Ota[1], R. Takeda[2], T. Yamada[2], Y. Takemura[2] ([1]Shizuoka Univ., [2]Yokohama National Univ.)

Medical・Biotechnology Ⅱ **10:45 〜12:00** Chair: Y. Takemura(Yokohama National Univ.)

8aD-6 Study of relationship between Brownian relaxation and ionic concentration in aqueous solution
°S. Oda, Y. Kitamoto (Tokyo Inst. Tech.)

8aD-7 Low oscillatory-field relaxometry for estimating hydrodynamic-size distribution of magnetic nanoparticles dispersed in a liquid medium
°S. Trisnanto, Y. Kitamoto (Tokyo Inst. Tech.)

8aD-8 N100 Brain Waves Detection Using Highly Sensitive MI Sensor
°Q. Shen, K. Wang, T. Uchiyama (Nagoya Univ.)

8aD-9 Magnetocardiogram measurement using MI sensor outside magnetically shielded room
°T. Tanaka[1], Y. Hata[1], Y. Ogata[1], B. Kakinuma[1], T. Ueda[2], K. Kobayashi[3] ([1]ATL, [2]PhosMega, [3]Iwate Univ.)

8aD-10 Evaluation Method of Magnetic Sensors Using Phantom for Magnetoencephalography
°D. Oyama, Y. Adachi, G. Uehara (Kanazawa Inst. Tech.)

Medical・Biotechnology Ⅲ **13:00 〜14:15** Chair: Y. Kitamoto(Tokyo Inst. Tech.)

8pD-1 Effect of magnetic fields on anticancer drug uptake to human cells and cell viability
°D. Matsui, M. Kakikawa, S. Yamada (Kanazawa Univ.)

8pD-2 Effect of magnetic field on anticancer drug in multidrug-resistant cancer cells
°H. Ohno, M. Kakikawa, S. Yamada (Kanazawa Univ.)

8pD-3 Synthesis of magnesium ferrite nanoparticles and their induction of cell death in human breast cancer cells at elevated temperature under alternating magnetic field

°M. Kanazu, S. Matsuda, T. Nakanishi, Y. Kashimata, T. Momma, T. Osaka (Waseda Univ.)

8pD-4 A Study of the Wireless Power Transmission Used Square Wave Supply For Rechargeable Cardiac Pacemaker

°T. Sato, A. Ito, R. Kato, T. Kutsuwada (Sendai Nat. Coll. Tech.)

8pD-5 Feasibility of magnetoreception in human

°K. Takahashi (Chukyo Univ.)

Sep. 8/Room E

High magnetic field・Magnetic properties **9:00 〜10:30** Chair: H. Uchida(Toyohashi Univ. Tech.)

8aE-1 Interfacial frustration originating from quantum well formation in epitaxial Fe/Ag/Cr trilayers

°E. Wada, K. Yokoyama, K. Kato, R. Onodera, D. Akahoshi, T. Saito (Toho Univ.)

8aE-2 Study on simple measurement method of Dzyaloshinskii-Moriya interaction by using simulations

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

8aE-3 Mössbauer Spectroscopy and Heat capacity of two dimensional Kondo lattice $CeFe_{1-x}Cr_xPO$

°S. Taninaka[1], K. Ida[1], T. Okano[1], S. Kitao[2], M. Seto[2], K. Kindo[3], Y. Ohama[3], M. Matoba[1], Y. Kamihara[1] ([1]Keio Univ., [2]Kyoto Univ., [3]Univ. of Tokyo)

8aE-4 Magnetic properties and crystal structures of organic-inorganic layered transition metal hydroxides $M_2(OH)_2(TPA)$, (M =Fe, Co, Ni, Cu)

°K. Anai[1], T. Kida[2], M. Hagiwara[2], T. Fukuda[1], N. Kamata[1], Z. Honda[1] ([1]Saitama Univ., [2]Osaka Univ.)

8aE-5 Magnetic properties of oxalate like ligands bridged honeycomb coordination polymers

°Q. Lin[1], T. Kodama[1], A. Okutani[2], T. Kida[2], M. Hagiwara[2], T. Fukuda[1], N. Kamata[1], Z. Honda[1] ([1]Saitama Univ., [2]Osaka Univ.)

8aE-6 In-situ observation of particles deposition process on a ferromagnetic filter during high-gradient magnetic separation

°N. Hirota[1], T. Ando[2], T. Takano[2], H. Okada[1] ([1]NIMS, [2]Nihon Univ.)

Magneto-Optics **10:45 〜11:45** Z. Honda(Saitama Univ.)

8aE-7 Improvement of diffraction efficiency of volumetric magnetic hologram with magnetic assist recording

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

8aE-8 Enhancement of efficiency of magneto-optic three dimensional displays with *a*-TbFe/BiDyAl:YIG multilayer structure

°K. Nakamura[1], T. Goto[1, 2], H. Takagi[1], Y. Nakamura[1], Pang Boey Lim[1], H. Uchida[1], M. Inoue[1] ([1]Toyohashi Univ. Tech., [2]JST-PREST)

8aE-9 Fabrication of magnetophotonic crystals working at near-infrared region using high thermal resistant Bragg mirrors

°T. Yoshimoto[1], T. Goto[1, 2], H. Takagi[1], Y. Nakamura[1], H. Uchida[1], M. Inoue[1] ([1]Toyohashi Univ. Tech., [2]JST-PRESTO)

8aE-10 Magneto-optic effect of Fe nanofilm using polarization-controlled soft X-ray source

°Y. Kubota[1], M. Taguchi[2], Y. Hirata[1], R. Hobara[1], S. Yamamoto[1], T. Someya[1], Y. Yokoyama[1], K. Yamamoto[1], K. Takubo[1], M. Araki[1], S. Yamamoto[1], J. Miyawaki[1], M. Fujisawa[1], Y. Harada[1], M. Tsunoda[3], H. Wadati[1], S. Shin[1], I. Matsuda[1] ([1]Univ. of Tokyo, [2]NAIST, [3]Tohoku Univ.)

Soft magnetics **13:00 〜14:00** Chair: M. Tsunoda(Tohoku Univ.)

8pE-1 Soft magnetic properties of Fe-base thick amorphous alloy sheets—2

°T. Sato[1], Y. Koyama[2], Y. Nakamura[3] ([1]SACO, [2]Isuzu Motors, [3]Tokyo Inst. Tech.)

8pE-2 The Characteristics of Oscillation Power Generator Using Thick Amorphous Sheets

°T. Sato (SACO)

8pE-3 Structure and Magnetic properties of ceramics intercalated Co–SiO_2 nano-granular films

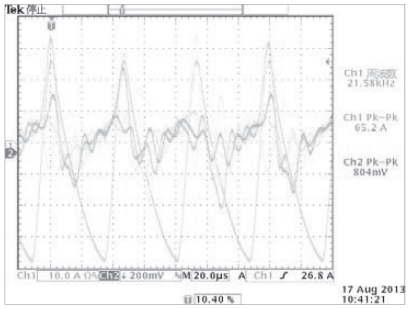
°H. Aoki[1], S. Ohnuma[2], H. Masumoto[1], M. Yamaguchi[1] ([1]Tohoku Univ., [2]DENJIKEN)

8pE-4 Composition Dependence of magnetic properties in a-CoFeSiBHf thin films

°M. Jimbo[1], Y. Fujiwara[2], T. Shimizu[1] ([1]Daido Univ., [2]Mie 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



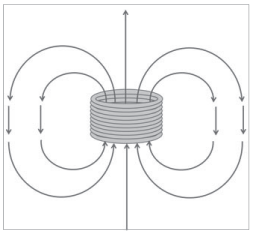
測定波形

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。

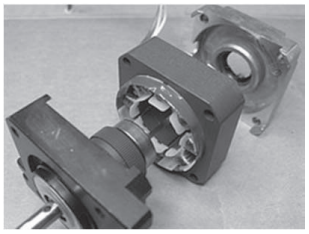
従来の高周波磁場測定の問題点である誘導ノイズ起因の誤測定を大幅に改善したガウスメーターです。

適用事例・測定のご提案



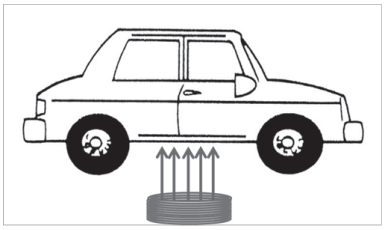
着磁パルス磁場

誘導加熱



Inside a stepper motor by Euphy

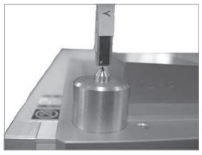
モーター、トランスの
漏洩磁場

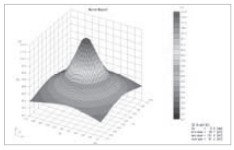


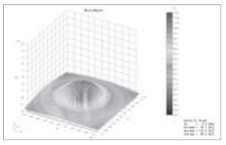
非接触給電

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。







ガウスメーターメーカーだから出来る正確な磁界分布測定を一度お試しください。

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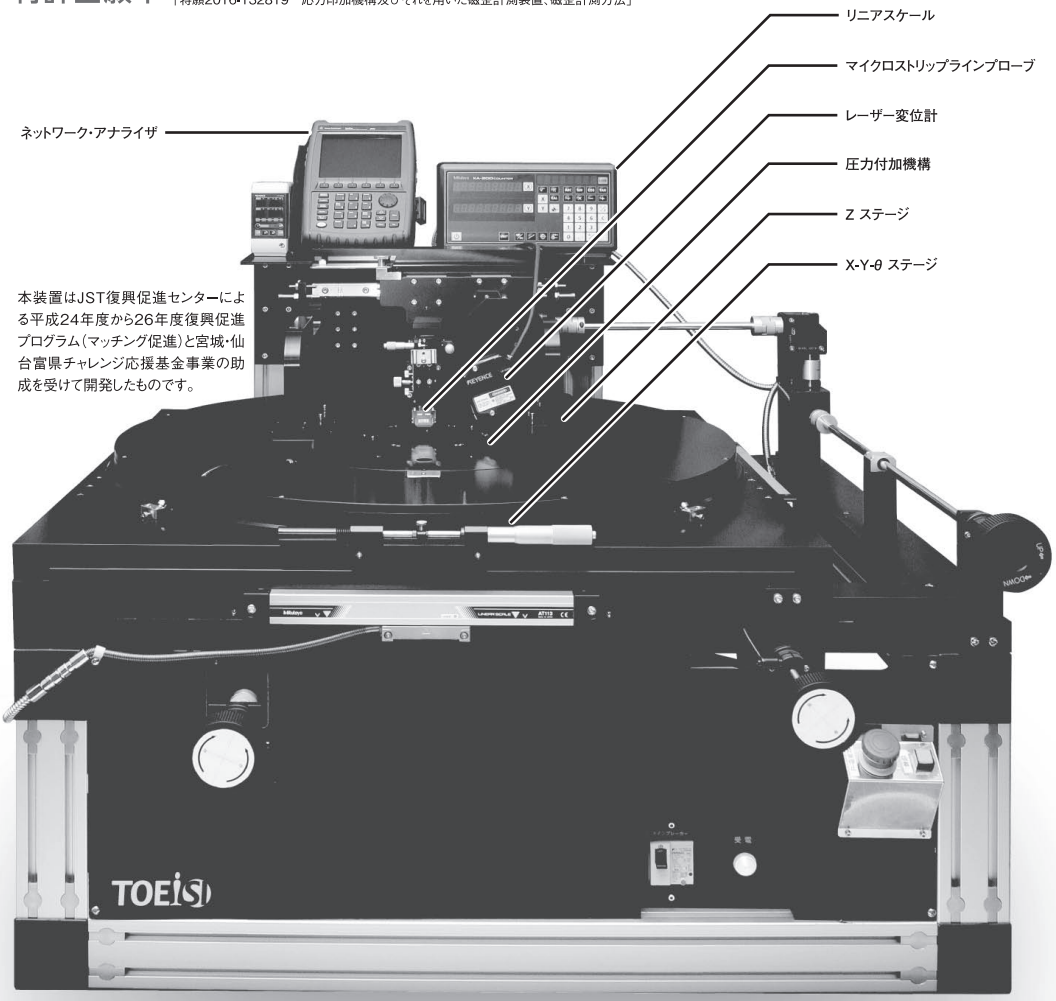
高周波磁性薄膜評価装置 Model:TKS-HMP

特許出願中 「特願2010-169349　磁性体の透磁率計測装置及び磁性体の透磁率計測方法」
「特願2016-132819　応力印加機構及びそれを用いた磁歪計測装置、磁歪計測方法」



本装置はJST復興促進センターによる平成24年度から26年度復興促進プログラム（マッチング促進）と宮城・仙台富県チャレンジ応援基金事業の助成を受けて開発したものです。

概要:磁気製品に使用される磁性材料の高周波磁気特性をインライン（非破壊）で測定可能な装置で大口径（非破壊）、高周波、極薄膜の評価測定を実現しました。
磁歪測定、透磁率測定、デバイスの電気特性（プローバ機能）と多様な測定が可能です。

個別仕様

- ●磁 歪 測 定：マイクロストリップラインプローブ法+歪み印加法
  磁気共鳴周波数の変化からλsを算出
  自動歪み制御　歪み量測定(レーザー変位計)
  膜厚5nm～　(ネットワーク・アナライザー使用)
- ●透 磁 率 測 定：マイクロストリップラインプローブ法
  表皮効果によるインピーダンスの変化からμを算出
  帯域～20GHz　膜厚5nm～
  (ネットワーク・アナライザー使用)
- ●プローバ機能：磁場印加DC/RF測定　プロービング機構　カメラ機構

共通仕様

- ●ウエハサイズ：シリコンウエハ　φ3inch～φ8inch
- ●ステージ移動範囲：X-Y=試料サイズ　Z=10mm　θ=±3°
- ●ステージ駆動：ハンドルによる手動操作　移動量デジタル表示
- ●電　磁　石：バイアス磁界用　面内Max±0.3T　バイポーラ電源
  測定内容により磁場強度、一軸/二軸、
  低残留ヨーク/鉄ヨーク、回転機構など選択可能
- ●磁 界 検 出：ホール素子(試料位置磁場出力)
- ●データ取得、解析：ノートパソコン　解析ソフト
- ●寸 法 、重 量：W1200×D1200×H1700mm　約800kg

株式会社東栄科学産業
本　　社：〒982-0032　仙台市太白区富沢4-8-29　Tel.022-743-3221㈹　Fax.022-743-3235
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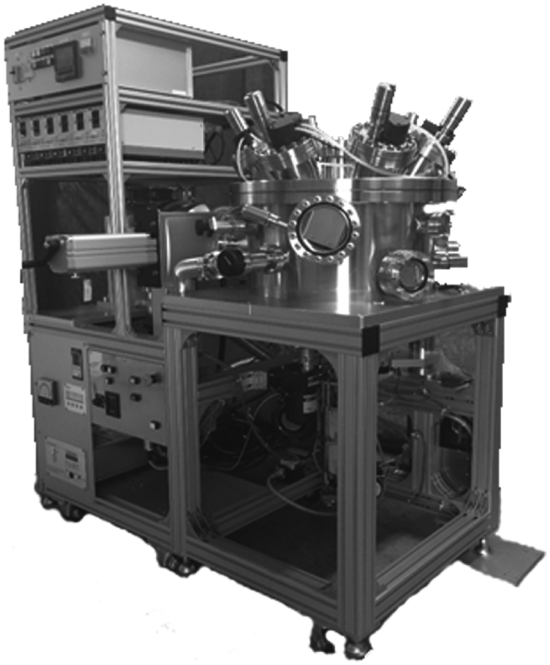
ハヤマの研究開発用スパッタ装置



【特 徴】

◎ 6基の小型カソードが個別のシャッターと電源を持ち、
同時放電による合金膜や積層膜の形成に最適です。

◎ リボルバー式サンプルホルダーを装備しており、
一度の真空引きで4条件の成膜ができます。

【主な仕様】

カソード	DCφ2“マグネトロン×6基
シャッター機構	全個別シャッター
スパッタDC電源	500 mA×6台独立
基板自転	10～30 rpm
基板ホルダー （リボルバーホルダー）	最大φ2インチ、4枚
基板加熱	最大600℃

詳細はお問い合わせください。

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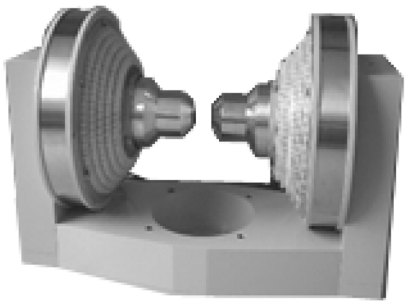
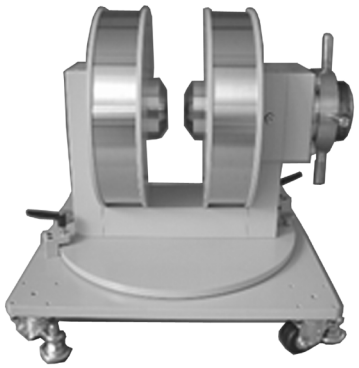
特殊形状電磁石の磁界解析設計製造致します。





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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

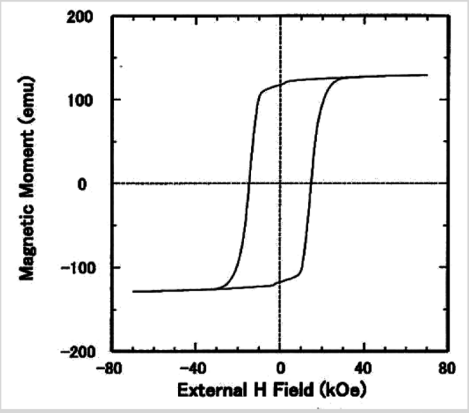
◆主な特徴

- ✓ 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

5Tesla ソレノイドコイル型 VSM　TM-VSM5050-SMS 型

5T フルループ測定　最速 10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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現代講座・磁気工学　【各巻A5判・上製本】

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。

1 磁気工学入門 ―磁気の初歩と単位の理解のために―
高梨弘毅著……132頁・本体2,800円

2 磁気工学の解析法
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3 スピントロニクス ―基礎編―
井上順一郎・伊藤博介著……296頁・本体3,600円

4 スピントロニクス ―応用編―
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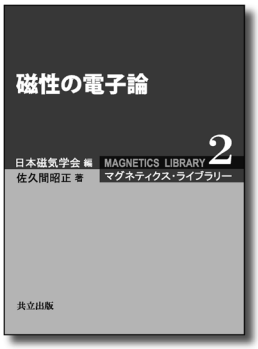

本シリーズは磁気工学の基礎理論から最先端まで幅広い分野からテーマを集め，境界領域も含めて様々な研究分野に寄与する磁気の参考書として編纂。

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
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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

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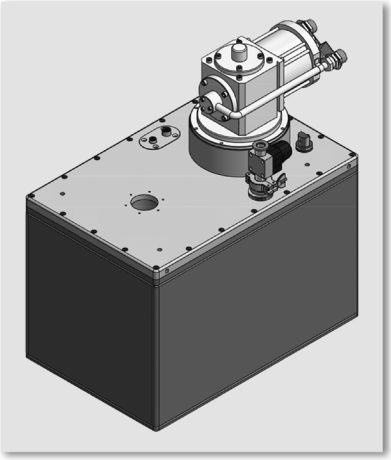
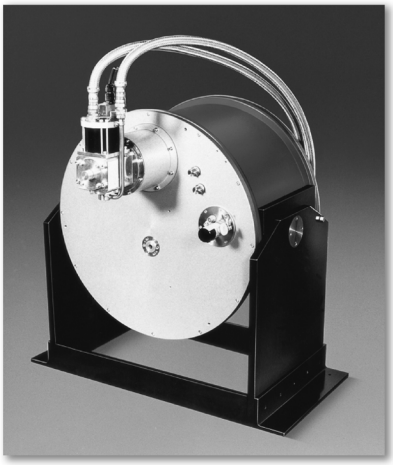


新ミニ型テーブルトップ無冷媒マグネット

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
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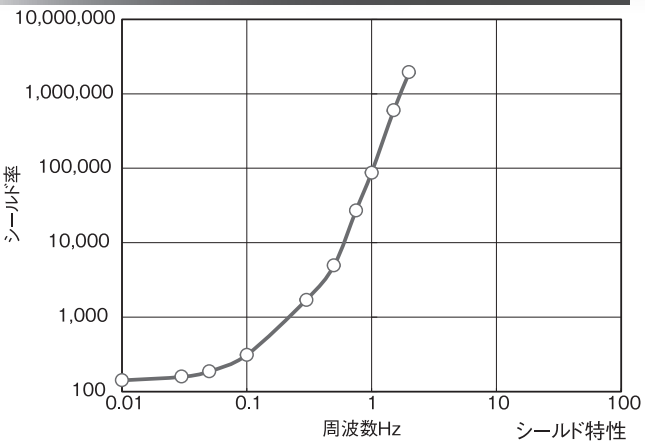
大阪 TEL(06)6541-3737　名古屋 TEL(052)252-7381　山口 TEL(0839)72-3764

大同プラント工業の磁気シールド

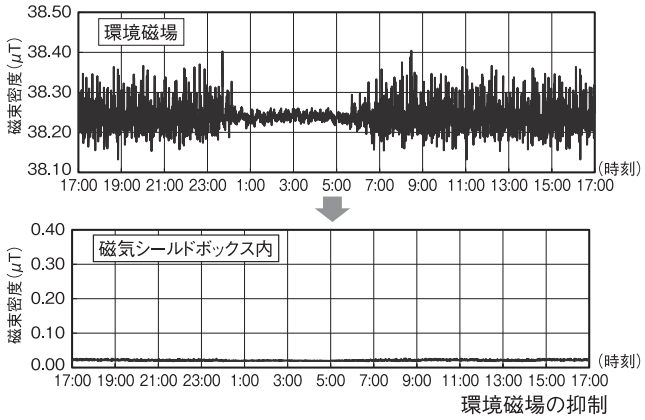
大同プラント工業は、用途に合わせた磁気シールド機器を幅広く提供します。

設置例（内寸：W2000×D3600×H2000㎜）

環境磁気騒音を極度に抑えた空間を作り出す磁気シールドルーム



応用範囲の広い中型磁気シールドボックス



環境磁場の抑制

電車運行時に発生する環境磁場の検証例では
磁場が著しく低く抑制されています。
（計測地点：名古屋市内 私鉄線路より90m地点）

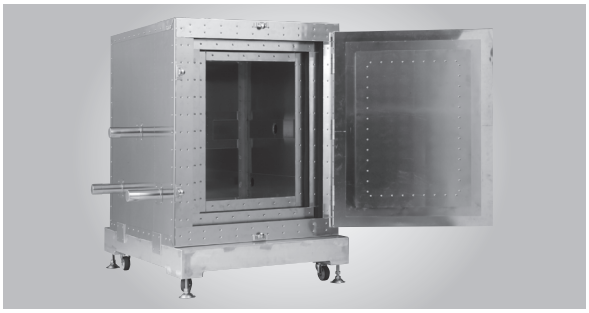
製作例（内寸：W700×D2000×H700㎜）

磁気シールド効果の検証など基礎研究に最適な実験キット

品名	磁気シールド実験キット
品番	DS-ST01
サイズ	φ190×360L（㎜）
参考価格（1個）	¥60,000（消費税別）

詳細はお問合せ下さい。

工場内検査ラインへの適用も考えた小型磁気シールドボックス



製作例（内寸：W800×D1000×H1000㎜）

大同プラント工業株式会社　Daido Plant Industries,Co., Ltd.

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