

Contents of Volume 2

5 Wires, Tapes, and Bulk

5.1 YBCO Type Superconductors

YBa ₂ Cu ₃ O _{7-δ} Thick Films on Ni-Based Alloys X.D. WU, S.R. FOLTYN, P.N. ARENDT, H.F. SAFAR, J.Y. COULTER, W.L. HULTS, J. BINGERT, H. KUNG, M.P. MALEY, J.L. SMITH	647
Microstructure and Superconductivity of Liquid Phase Epitaxially Grown YBa ₂ Cu ₃ O _y Superconductor I. HIRABAYASHI, T. KITAMURA, M. YOSHIDA	653
Fabrication of High-J _c YBCO Tapes Using Continuously Deposited YSZ Buffer Layers by IBAD Method Y. IJIMA, M. HOSAKA, N. TANABE, N. SADAKATA, T. SAITOH, O. KOHNO, J. YOSHITOMI	659
Melt Texturing of YBCO with Excess of Yttrium Oxide P. GÖRNERT, P. DIKO, W. GAWALEK, T. HABISREUTHER, A. KÖHLER, D. LITZKENDORF, T. STRASSER, M. WU, G. KRABBES, W. BIEGER, P. SCHÄTZLE, G. STÖVER, U. WIESNER	663
Critical Currents of Unidirectionally Grown YBa ₂ Cu ₃ O _{7-x} S. ASAKURA, S. NAGAYA, T. SHIMONOSONO, M. NAKAGAWA, N. SADAKATA, T. SAITO, O. KOHNO	667
Fabrication of YBCO Superconducting Tape by Continuous MOCVD Technique K. ONABE, S. NAGAYA, T. SHIMONOSONO, Y. IJIMA, N. SADAKATA, T. SAITO	671
1 Meter Long Thin Film Tape with High J _c of 1.5 × 10 ⁵ A/cm ² Fabricated by Pulsed Laser Deposition K. FUJINO, K. HASEGAWA, H. MUKAI, K. SATO, T. HARA, T. OHKUMA, H. ISHII, S. HONJO	675
Compositional Segregation Within Seeded Crystals of Bulk YBaCuO S. HONJO, M.J. CIMA, M.C. FLEMINGS, J.S. HAGGERTY, T. OHKUMA, H. SHEN, K. RIGBY, T.H. SUNG	679
Grain Growth of Y ₂ BaCuO ₅ in the YBa ₂ Cu ₃ O _{7-x} Superconductor Prepared by a Melt Process S. NAGAYA, S. KOHAYASHI, S. HASEYAMA, S. YOSHIZAWA	683
Influence of Moisture and Carbon Adsorped in Calcined HTC Powders on the Superconductivity of Sintered Bulks A. MURATA, M. SATOH, S. YOSHIZAWA, K. TOBIISHI, T. KIKUCHI, K. FURUYA	687

Properties of Fine Superconducting YBCO Particles Prepared by Dry- and Wet-Type Jet-Mill H. KEZUKA	691
The J_C of $Y_1Ba_2Cu_3O_x$ Superconducting Filament Spun Through Various Spinning Dope H. TOMITA, T. GOTO, K. TAKAHASHI	695
Field Dependence of the J_C for Melt-Processed $Y_1Ba_2Cu_3O_x$ Filament Produced by Solution-Spinning T. YUOKA, T. GOTO, K. WATANABE, S. AWAJI	699
Preparation and Superconducting Properties of Melt-Textured $NdBa_2Cu_3O_y$ Bulk with Sm_2BaCuO_5 Addition A. TAKAGI, T. YAMAZAKI, S. IKEDA, Y. YANAGI, Y. ITOH, M. YOSHIKAWA, T. OKA, Y. YAMADA, U. MIZUTANI	703
Flux Trapping Characteristics of Melt-Processed Y-Ba-Cu-O Bulk Magnet by Pulse Magnetization Y. ITOH, Y. YANAGI, M. YOSHIKAWA, T. OKA, M. TSUCHIMOTO, Y. YAMADA, U. MIZUTANI	707
Critical Current Density of OCMG-processed Nd123 Crystals T. HIGUCHI, T. EGI, S.I. YOO, K. WAKI, K. SAWADA, N. SAKAI, M. MURAKAMI, N. KOSHIZUKA	711
Formation Study of Gd123 Under Various Oxygen Partial Pressures M. TAKAHASHI, N. SAKAI, S. GOSHIMA, S.I. YOO, M. MURAKAMI	715
$NdBa_2Cu_3O_y$ Single Crystals Fabricated by Flux Method in Low Oxygen Partial Pressures K. SAWADA, S.I. YOO, N. SAKAI, T. HIGUCHI, M. MURAKAMI	719
Mechanical Properties of OCMG-Processed Nd-Ba-Cu-O Superconductors T. MURAYAMA, N. SAKAI, S. GOSHIMA, H. KOJO, K. SAWADA, S.I. YOO, M. MURAKAMI	723
Trapped Field on Stacked Plates of YBCO Superconductors K. NAGASHIMA, T. HIGUCHI, H. FUJIMOTO, M. MURAKAMI	727
The Effect of the Nominal Composition on the Seeded Melt Growth of Y-Ba-Cu-O S. TAKEBAYASHI, S.I. YOO, M. MURAKAMI	731
Grain Enlargement in OCMG-Processed RE-Ba-Cu-O Superconductors and Their Properties N. HAYASHI, S.I. YOO, K. SAWADA, M. DEGUCHI, T. HIGUCHI, N. SAKAI, M. MURAKAMI	735
Melt Growth and Properties of Ag-Doped Nd-Ba-Cu-O S. GOSHIMA, N. SAKAI, M. TAKAHASHI, T. HIGUCHI, T. MURAYAMA, K. IIDA, S.I. YOO, M. MURAKAMI	739
Uniformity of $YBa_2Cu_3O_{7-x}$ Single Crystals Grown by the Modified Pulling Method Y. NAMIKAWA, M. EGAMI, S. KOYAMA, Y. SHIOHARA	743

Fabrication of Large YBCO Single Crystal by SRL-CP Method Under 1 atm Oxygen Pressure X. YAO, M. EGAMI, Y. NAMIKAWA, T. MIZUKOSHI, Y. SHIOHARA	747
Substitution of Pr for Ba in PBCO Single Crystals Fabricated by Crystal Pulling M. TAGAMI, Y. SHIOHARA	751
Y211 Distribution in Y123 Crystals Grown by Undercooling Solidification A. ENDO, H.S. CHAUHAN, Y. SHIOHARA	755
Preparation and Growth Mechanism of YBCO Thin Film on Ag Substrate M. YAMAZAKI, Y. KUDO, H. YOSHINO, K. ANDO, K. INOUE	759
Melt Growth of YBaCuO and Magnetic Shielding Effect H. FUJIMOTO, T. BAN, K. KAWANO, K. OHNO, M. KOJIMA, S. HASEYAMA, S. YOSHIZAWA	763
Fabrication of Flexible Yttria Stabilized Zirconia Fiber for Superconducting Wire J. KAWASHIMA, T. KITAMURA, S. TANIGUCHI, Y. NIIORI, Y. SHIOHARA, I. HIRABAYASHI, S. TANAKA	767
Preparation of YBa ₂ Cu ₃ O _{7-y} Thick Film on YSZ Substrate by Liquid Phase Epitaxy S. TANIGUCHI, T. KITAMURA, Y. SHIOHARA, I. HIRABAYASHI, Y. SUGAWARA, Y. IKUHARA, S. TANAKA	771
Grain Boundaries and Critical Current Density of YBa ₂ Cu ₃ O _{7-y} Thick Film Prepared by Liquid Phase Epitaxy T. KITAMURA, J.G. WEN, Y. SHIOHARA, N. KOSHIZUKA, I. HIRABAYASHI, Y. SUGAWARA, Y. IKUHARA, S. TANAKA	775

5.2 BSCCO, TBCCO, and Other Type Superconductors

Tape Development: Microstructure and Critical Current Densities R. FLÜKIGER, G. GRASSO, A. JEREMIE, B. HENSEL, R. GLADYSHEVSKII, J.C. GRIVEL, F. MARTI, C. OPAGISTE, A. PERIN, M. DÄUMLING	781
Mechanical and Superconducting Properties of Composite BPSCCO Tapes K. OSAMURA, S. NONAKA, Y. KATSUMURA, S. OCHIAI	787
Fabrication and Properties of Silver-Sheathed BSCCO Conductors U. BALACHANDRAN, A.N. IYER, R. JAMMY, P. HALDAR	793
Transport Properties of 3T-Class Bi-2212/Ag Stacked Pancake Coils M. OKADA, K. TANAKA, K. FUKUSHIMA, J. SATO, H. KITAGUCHI, H. KUMAKURA, T. KIYOSHI, K. INOUE, K. TOGANO	799
Universality in Magnetic Field Dependencies of Critical Current for Ag-Sheathed Bi-2223 Superconducting Tapes S. KOBAYASHI, T. KANEKO, T. KATO, K. SATO	803

Measurements of dc Magnetic Susceptibility in Low Fields for Bi-2223 Ag-Sheathed Tapes T. KANEKO, S. KOBAYASHI, K. SATO	807
Ag Alloy Sheathed BPSCCO Superconducting Wires K. HAYASHI, N. SAGA, K. OHKURA, K. SATO	811
ac Losses in BSCCO/Silver Composite Tapes H. ISHII, S. HIRANO, J. FUJIKAMI, K. SATO, T. HARA	815
Hot Forging with High Temperature Heat Treatment of Bi-Pb-Sr-Ca-Cu-O Superconductors N. MURAYAMA, J.B.V. SANDE	819
Preparation and Superconducting Properties of Bi2223 Thick Films K. YOSHIKAWA, H. IKEDA, R. YOSHIKAWA	823
Fabrication and Properties of Screen-Printed Ag-Bi2223 Tapes A. OOTA, K. OGAWA, K. SHIBATA, K. KAWANO, T. BAN, H. FUJIMOTO ...	827
ac Transport Losses of Ag-Sheathed Bi2223 Monofilamentary and Multifilamentary Tapes T. FUKUNAGA, M. MATSUI, S. YUHYA, M. HIRAOKA, A. OOTA	831
Effect of Various Sheath Alloys for Powder-in-Tube Processed Bi-2223/Ag Tapes J. YOO, H. CHUNG, J. KO, H. KIM	835
Fabrication and Properties of Ultra Fine MgO Added Bi-2223/MgO/Ag Tapes J.W. KO, H.D. KIM, B.T. LEE, S.M. YOO, J. YOO, H. CHUNG	839
Formation and Properties of the 2223-BiPbSrCaCu Phase in Power-in-Tube-Processed Tapes with Ag and AgCu Sheaths K. FISCHER, A. HÜTTEN, E. MÜLLER, H.P. TRINKS, T. STAIGER, B. WOLF	843
Mechanisms of Current Transport in Silver Sheathed Bi-2223 Tapes G. FUCHS, T. STAIGER, P. VERGES, K. FISCHER, A. GLADUN	847
Physical Properties of Rolled Ag and Ag-Mg Sheathed Bi(2223) Tapes G. GRASSO, F. MARTI, S. CASTELLAZZI, C. FERDEGHINI, M.R. CIMBERLE, M. PUTTI, A.S. SIRI, N. REIMANN, B. DUTOIT, R. FLÜKIGER	851
Optimization of the Fabrication Process of Rolled Ag Sheathed Bi(2223) Tapes G. GRASSO, F. MARTI, A. JEREMIE, R. FLÜKIGER	855
Fabrication of Bi-Based Superconductor M. MIMURA, H. II, K. KOSUGI, Y. TANAKA, N. UNO, K. SATOU	859
Basic Study of Silver-Sheathed BSCCO-2223 Superconducting Coil for SMES K. OHKURA, M. UHEYAMA, K. SATO, A. RYOMAN, Y. IMAI, T. KISHIDA ..	863
Calcination Conditions of Powder for Ag-Sheathed Bi-2223 Tapes H. HIGUMA, S. MIYASHITA, M. WAKATA, F. UCHIKAWA, K. SHIMOHATA, S. YOKOYAMA	867

Flux Creep for Circulating Current in Bi2223 Cylindrical Bulk Superconductor T. YASUNAGA, D. ITO	871
Characterization of Bi ₂ Sr ₂ CaCu ₂ O _x Superconducting Rods and Tapes O. KASUU, K. TAKAHASHI, K. SATO, N. YOSHIDA	875
Growth Morphology and Superconductivity Property of Bi-2212 Single Crystals G.D. GU, T. EGI, N. KOSHIZUKA, P.A. MILES, G.J. RUSSELL, S.J. KENNEDY	879
Critical Current Anisotropy and Vortex Glass Scaling in Silver Sheathed BBSCCO-2212 Wires and BSCCO-2223 Tapes B. LEHNDORFF, B. FISCHER, M. HORTIG, J. MÜLLER, H. PIEL, R. THEISEJANS	883
Fabrication of Multifilamentary Bi-2212-Ag (Mg, Ni) Composite Superconductor by Partial Melt Process under High Po ₂ K. SHIBUTANI, T. HASE, S. HAYASHI, M. SHIMADA, R. OGAWA, Y. KAWATE	887
Anomalous Current Transfer in Bi-2212/Ag Due to Hall Effect H. KITAGUCHI, H. KUMAKURA, K. TOGANO	891
Fabrication and Characterization of Bi-2212 Multilayer Tape Prepared by Continuous Heat Treatment Technique T. HASEGAWA, Y. HIKICHI, H. KUMAKURA, H. KITAGUCHI, K. TOGANO ..	895
Fabrication of Hg ₁ Ba ₂ Ca ₂ Cu ₃ Re _{0.1} O _x Filament by Solution Spinning Method T. GOTO	899
Biaxially Oriented Tl-1223 Film With High J _c on {100}<001> Textured Ag Tape T.J. DOI, N. SUGIYAMA, T. YUASA, T. OZAWA, K. HIGASHIYAMA, S. KIKUCHI, K. OSAMURA	903
Preparation and Characterization of Tl-2223 Multilayered Wires K. HIGASHIYAMA, H. AKADA, T. DOI, T. YUASA, K. KIMURA	907
Processing of Long Tl-1223 Superconducting Tapes by Spray Pyrolysis Method T. YUASA, T.J. DOI, K. HIGASHIYAMA	911
Critical Current in Tl-Base High-T _c Oxides Prepared by a Diffusion Process K. TACHIKAWA, A. KIKUCHI, T. KINOSHITA, T. NAKAMURA, S. KOMIYA ..	915

5.3 Applications

Superconducting Magnet System with YBa ₂ Cu ₃ O ₇ Current Leads in High Fields K. WATANABE, S. AWAJI, G.C. HAN, N. KOBAYASHI, K. KIMURA, M. HASHIMOTO	921
---	-----

The Current Lead Using Bi-Based Oxide Superconductor Supported on GFRP T.H. KIM, S. YOKOYAMA, T. UMEMURA	925
ac Losses in Bi-2223 Bulk Oxide Superconductor at Power Frequency Y. SAITA, M. URABE, T. YASUNAGA, D. ITO	929
Fabrication of Bi-2212 Superconducting Solenoid Coil with a Bore of Practical Size T. HASE, K. SHIBUTANI, S. HAYASHI, M. SHIMADA, R. OGAWA, Y. KAWATE	933
Bi-2212 Tapes and Coils Fabricated Using Ag-Mg-Zr Substrates K. KATO, J. SATO, S. KUMA, H. KITAGUCHI, H. KUMAKURA, K. TOGANO, N. INOUE	937
Research on Oxide Superconducting Wires for Application to Power Apparatuses J. YOSHITOMI, K. SATO, H. MUKAI, N. UNO, N. YOSHIDA, T. ICHIKAWA	941

6 Thin Films

6.1 Growth Mechanism and Preparation Technologies

Atomic Graphoepitaxial Model for a-Axis Oriented $\text{YBa}_2\text{Cu}_3\text{O}_x$ Thin Film Growth S. MIYAZAWA, M. MUKAIDA	949
Phase Control and Superconductivity of Oxycarbonate $\text{BaCaCuO}(\text{CO}_3)$ Thin Films Made by Sputtering H. ADACHI, M. SAKAI, T. SATOH, K. SETSUNE	955
Preparation and Surface Morphology of $\text{YBa}_2\text{Cu}_3\text{O}_{7-y}$ Films by MOCVD Using Liquid Sources Y. YOSHIDA, Y. ITO, H. NAGAI, Y. TAKAI, I. HIRABAYASHI	961
Fabrication and Properties of $\text{NdBa}_2\text{Cu}_3\text{O}_{7-8}$ Thin Film by Off-Axis rf Sputtering I.S. KIM, K. PARK, Y.K. PARK, J.C. PARK	965
Growth of 45°-Rotated Grains in c-Axis Oriented $\text{YBa}_2\text{Cu}_3\text{O}_{7-8}$ Films on MgO (100) by On-Axis dc Magnetron Sputtering M. SUZUKI, H. SAKURAI, T. SAKURAI, M. NAGANO, Y. WAKIYA	969
Preparation of Superconducting NdBaCuO Thin Films by MOCVD H. ZAMA	973
Homoepitaxy of $\text{YBa}_2\text{Cu}_3\text{O}_x$ by MOCVD H. ZAMA, S. KOYAMA, F. WANG, R. ITTI, Y. SHIOHARA, T. MORISHITA	977
Reproducibility of Composition and Superconducting Properties for $\text{YBa}_2\text{Cu}_3\text{O}_{7-8}$ Thin Films Prepared by Metal-Organic Chemical Vapor Deposition Using Liquid Metal-Organic Sources Y. ITO, Y. YOSHIDA, Y. MIZUSHIMA, I. HIRABAYASHI, H. NAGAI, Y. TAKAI	981

Step Growth of $\text{YBa}_2\text{Cu}_3\text{O}_x$ Films Prepared by rf Thermal Plasma Evaporation J. TSUJINO, Y. SHIOHARA	985
Fabrication and Characterization of Heteroepitaxial $\text{YBCO}/\text{CeO}_2/\text{Al}_2\text{O}_3$ Films Y. NAKAMURA, A. OHSUKA, S. OHSHIMA, K. OKUYAMA	989
Thin Film Growth and Surface Analysis of CeO_2 Prepared by MOCVD M. BECHT, T. MORISHITA, Y. SHIOHARA	993
Effects of Growth Rate in Fabricaton of $\text{Bi}2212$ and $\text{Bi}2201$ Thin Films Y. QI, T. TATANI, S. MIGITA, K. SAKAI, R. AOKI	997
Preparation of 80 and 110K-Phase Bi-Sr-Ca-Cu-O Thin Films by rf Magnetron Sputtering Using $\text{He}+\text{O}_2$ Gas T. MATSUOKA, T. MARUYAMA, K. HARADA, S. KISHIDA, H. TOKUTAKA, K. FUJIMURA	1001
Phase Stability of $\text{Bi}2212$ and $\text{Bi}2223$ Thin Films Fabricated by Ion Beam Sputterng Z. MORI, H. OTA, K. SAKAI, R. AOKI	1005
Surface Morphology of <i>In situ</i> Superconducting $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_8$ Epitaxial Thin Films Grown on Various Substrates S. KARIMOTO, K. TANABE, S. KUBO, K. TSURU, M. SUZUKI	1009
Growth and Properties of Doped $\text{Ba}_3\text{Cu}_3\text{O}_y$ Thin Films A. TSUKAMOTO, K. NAKANISHI, H. YAMAUCHI, K. TANABE	1013
$\text{Tl}_2\text{Ba}_2\text{CaCu}_2\text{O}_8$ Thin Films Annealed in a Sealed Capsule M. NEMOTO, S. YOSHIKAWA, I. YOSHIDA, Y. YOSHISATO	1017

6.2 Epitaxial Growth of Related Materials and Others

Thin Film Technology Directed Towards Josephson Tunnel Junction M. KAWASAKI, N. KANDA, R. TSUCHIYA, K. NAKANO, A. OHTOMO, K. TAKAHASHI, H. KUBOTA, T. SHIRAISHI, H. KOINUMA	1023
Thick Film YBCO for Wires and Tapes: Scale-Up Issues and Cost Estimates R.H. HAMMOND	1029
Anisotropy of Bi-Sr-Ca-Cu-O Thin Film Growth N. KUBOTA, M. AYABE, M. WATANABE, Y. SHIOHARA	1035
Determination of Surface Atomic Layer of SrTiO_3 Single Crystal and $\text{R}\text{Ba}_2\text{Cu}_3\text{O}_y$ Thin Films by Glancing Incident-Exiting X-Ray Z. LIU, S. OGOTA, M. BADAYE, G.A. ALVAREZ, T. MORISHITA	1039
Solid Phase Epitaxy of SrTiO_3 Surface Layer for the Growth of $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$ Films F. WANG, Y. YOSHIDA, H. OHTSUKA, T. MORISHITA	1043
Emission Spectroscopic Study on Laser Plume of $\text{Y}_1\text{Ba}_2\text{Cu}_3\text{O}_x$ K. FUKUSHIMA, R. ITTI, M. BADAYE, T. MORISHITA	1047

LT-UHV-STM/STS Study on Laser Ablated $\text{Nd}_{1+x}\text{Ba}_{2-x}\text{Cu}_3\text{O}_{7-\delta}$ Superconducting Thin Films R. ITTI, M. BADAYE, K. MATSUMOTO, WU TING, H. NAKAJI, N. KOSHIZUKA, T. MORISHITA	1051
Growth and Properties of $\text{NdBa}_2\text{Cu}_3\text{O}_{7-\delta}$ Epitaxial Films for the Fabrication of Heterostructures and Electronic Devices G.A. ALVAREZ, K. HAYASHI, Y. ENOMOTO	1055
Chemical Characterization of YBCO-Ag Film and Its Precursor Prepared by Dipping-Pyrolysis Process T. KUMAGAI, T. MANABE, I. YAMAGUCHI, S. NAKAMURA, T. TSUNODA, W. KONDO, S. MIZUTA	1059
Oxygen Annealing Effect of $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$ Thin Films M. CHIHAYA, K. MIYAMOTO, M. KURODA, S. KASHIWAYA, M. KOYANAGI	1063
Nanometer-Scale Surface Modification of $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+\delta}$ Using Scanning Tunneling Microscopy H. MUKAIDA, K. OKA, H. TOKUMOTO	1067
Is It Possible to Obtain Easily Single Phase of BSCCO Thin Film? H. OTA, K. SAKAI, S. MIGITA, Z. MORI, R. AOKI	1071
Electron Spectroscopy Characterization of CuO and Cu_2O Thin Films on MgO (100) T. CONARD, L.M. YU, J. GHIJSEN, R. CAUDANO	1075

7 Device Applications

7.1 Josephson Junctions

High- T_c Ramp-Type Josephson Junctions with $\text{PrBa}_2\text{Cu}_{3-x}\text{Ga}_x\text{O}_{7-\delta}$ Barrier H. ROGALLA, M.A.J. VERHOEVEN, G.K. VAN ANCUM, D.H.A. BLANK, G. GERRITSMAN	1083
Intrinsic Josephson Arrays in HTSC Thin Films-Novel Approach with TlBaCaCuO - YBaCuO Multilayers M. VEITH, T. EICK, K. KIRSCH, K. SCHLENGA, G. HECHTFISCHER, T. KÖHLER, W. BRODKORB, H.J. FUCHS, P. MÜLLER, E. STEINBEISS	1089
Study on Interface Characteristics of $\text{SrTiO}_3/\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$ Bilayers Grown by All-MBE H. INADA, T. NAKAMURA, M. IYAMA	1093
Reproducibility of Ramp-Edge and FIB Josephson Junctions Guided by TEM Microstructural Observations J.G. WEN, S. TOKUNAGA, Y. ISHIMARU, K. SUZUKI, Y. ENOMOTO, N. KOSHIZUKA	1097
Fabrication and Characterization of New Planar-Type SNS Junctions N. SUGII, Y. TARUTANI, T. FUKAZAWA, U. KABASAWA, H. HASEGAWA, K. TAKAGI	1101

Step-Edge Josephson Junctions Using $Tl_2Ba_2CaCu_2O_x$ Thin Films on MgO Substrates	
S. YOSHIKAWA, M. NEMOTO, R. YUASA, K. SHIMAOKA, K. NIKI, I. YOSHIDA, Y. YOSHISATO	1105
$Ba_{1-x}K_xBiO_3$ Artificial Grain Boundary Junctions	
S. SUZUKI, T. YAMAMOTO, H. SUZUKI, K. KAWAGUCHI, K. TAKAHASHI, Y. YOSHISATO	1109
Magnetic Field Properties of YBaCuO/Nonsuperconductive-YBaCuO/ YBaCuO Co-Planar Josephson Junction Using Focused Ion Beam	
Y. SOUTOME, Y. OKABE	1113
Tunneling Current-Voltage Characteristics of Bi-2212 Intrinsic Josephson Junction Stacks	
M. SUZUKI, K. TANABE, S. KARIMOTO, Y. HIDAKA	1117
Examination on Bi_2O_3 Tunnel Barrier for Cuprate Superconductor Electrode Junctions	
S. KUBO, S. KARIMOTO, K. MIYAHARA, K. TANABE, M. SUZUKI	1121
Manufacturing and Properties of YBCO Step-Edge Type Josephson Junctions	
V. BOFFA, S. BARBANERA, G. CELENTANO, U. GAMBARDILLA, S. PAGANO, T. PETRISOR, C. ROMEO	1125

7.2 SQUID

Parameter-Dependent Characteristics of High T_c dc SQUID	
K. ENPUKU, T. MARUO, T. MINOTANI, H. INOKUCHI, T. KISS	1131
Multi-Channel High T_c SQUID System and Its Application	
H. ITOZAKI, H. KUGAI, T. NAGAISHI, H. TOYODA, T. HIRANO, Y. HARUTA, S. TANAKA, H. KADO, M. NOMURA, T. SAJOU	1137
Noise Evaluation of High T_c SQUID	
H. TOYODA, H. ITOZAKI	1141
YBCO Thin film Flux Transformer with Multiturn Input Coil	
H. KUGAI, T. NAGAISHI, H. ITOZAKI	1145
Estimation of Inductance Value in SQUID	
H. FUKE, Y. ISHIMARU, A. ODAGAWA, Y. ENOMOTO	1149

7.3 Microwave Devices

HTS Millimeter Wave Mixer Antenna-II	
K. SUZUKI, M. BAN, S. TOKUNAGA, Y. MIZUNO, K. HAYASHI, K. YAMAGUCHI, M. OHTSUKA, Y. ENOMOTO	1155
Analysis of an Electromagnetically Coupled Superconducting Small Antenna Using a Simulation Model	
N. SUZUKI, Y. NAGAI, K. ITOH, O. MICHIKAMI	1159
Microwave Response of Intrinsic Josephson Junction Array Fabricated on Bi-2212 Single Crystal	
M. TONOUCHE, T. YASUDA, A. ITOH, Y. UZAWA, Z. WANG, S. TAKANO ..	1163

Numerical Prediction of Microwave Radiation from High T_c Superconducting Microstrip Antenna	
M. MIYAUCHI, Y. OHKI, Y. TANIGUCHI, S. OHSHIMA	1167
Millimeter Wave Response of Josephson Junction Arrays Using a Waveguide to Microstrip Line Converter	
K. TSURU, K. MIYAHARA, M. SUZUKI	1171
Design and Fabrication of Metal and Superconducting Antennas	
S. OHSHIMA, T. FUKUNAGA, T. OGASAWARA, K. OKUYAMA, K. IMAI, K. SAWAYA	1175
Comparisons Between NdBaCuO and YBaCuO-Based Resonators	
M. BAN, K. SUZUKI, Y. MIZUNO, S. TOKUNAGA, Y. ENOMOTO	1179
Fabrication of FIB Josephson Junctions with High Microwave Impedance	
S. TOKUNAGA, M. BAN, K. HAYASHI, M. OHTSUKA, K. SUZUKI, Y. ENOMOTO	1183
HTS Multipole Bandpass Filters with Arbitrary Parallel Coupled-Line Length	
J. KIM, K.Y. KANG, S.K. HAN, D. AHN	1187

7.4 Other Superconducting Devices

Vortex Flow Transistors with Nano-Structures	
A. FUJIMAKI, M. KUSUNOKI, M. KITO, S. YOSHIDA, H. ANDOH, H. HAYAKAWA	1193
An Integrated Space Experiment Demonstrating HTS Digital Circuits	
A. SILVER, G. AKERLING, R. AUTEN, D. DURAND, J. GODDEN, K.F. LAU, R. ORSINI, J. RAAB, S. SCHWARZBEK, E. TWARD, M. WIRE . . .	1199
Development of Device Isolation Structures	
M. IIYAMA, H. INADA, T. NAKAMURA	1205
Analysis of Single Flux Quantum Logic Circuits Using rf-SQUIDS	
H. KODAKA, Y. OKABE	1209
Flux Flow Transistors Made of Ag Doped $YBa_2Cu_3O_{7-\delta}$ Superconducting Weak Links	
Z. WEN, H. ABE	1213
High- T_c Vortex Flow Transistors with FIB Josephson Channels	
K. MIYAHARA, K. TSURU, S. KUBO, M. SUZUKI	1217
Fabrication of Mesa-Type FETs—Contact Resistance After Exposure of $YBa_2Cu_3O_y$ Surface to Ar Ion Beam—	
T. MATSUI, H. KAMIJO	1221
Properties of Superconducting Plasmas	
T. OHNUMA, K. SATO, O. PAUL	1225
Confinement of Discharge Plasma with High- T_c Bulk Superconductor Tubes (Supertrons)	
Y. MIZUTANI, J. ISHIKAWA, H. MATSUZAWA	1229

Diffusion of Self-Magnetic Fields of Electron Beams Through High- T_c Bulk Superconductor Lenses (Supertrons)	
A. MATSUSHITA, Y. HAYASHI, H. MATSUZAWA	1233
New Vibrating Sample Magnetometer for 31T Hybrid Magnet	
G.C. HAN, S. AWAJI, K. WATANABE, N. KOBAYASHI	1237
Development of HTS Device Applications at Intermagnetics	
R.S. SOKOLOWSKI, D. HAZELTON, M. WALKER, P. HALDAR	1241

8 System Applications

8.1 Electric Power Systems and Large-Scale Systems

Status of Energy Applications of High T_c Superconductors in Italy	
S. ZANNELLA	1249
SMES in Alaska	
M.T. ASLAM, S.F. KRAL	1255
Measuring and Reducing ac Losses in BSCCO Wires	
A.P. MALOZEMOFF	1263
A 66kV-2kA _p Load Test of High- T_c Superconducting Power Cable	
O. MIURA, S. TANAKA, K. MIYOSHI, N. ICHIYANAGI, S. MUKOYAMA, Y. TANAKA, H. ISHII, T. HARA	1269
State of Development of the Superconducting Maglev System	
H. TSURUGA	1273
Design of a Modified D Shaped Toroidal Coil for 1kWh/1MW Experimental SMES	
T. EZAKI, H. OKADA, F. IRIE, K. TSUTSUMI, T. IMA Yoshi, M. TAKEO	1279
New Type Mechanical PCS for SMES	
S. NOZAKI, M. AIDA, M. MASUDA, M. HAMADA	1283
Development and its Characteristics of kA-Class Magnetic PCS Conductor for SMES	
N. SADAKATA, K. GOTO, K. UCHIYAMA, T. SAITO, O. KOHNO, M. MATSUKAWA, K. NOTO, H. HONMA, C. TAKAHASHI	1287
Superconducting Current Limiting Element for 200 Vrms-Class Circuit Using YBCO Thin Film by Chemical Vapor Deposition	
S. MATSUNO, T. UMEMURA, F. UCHIKAWA, T. HAYASHI, T. MORI, B. IKEDA	1291
Design and Operating Characteristics of Superconducting Transformer with Simple Configuration	
T. ISE, Y. MARUTANI, Y. MURAKAMI, E. YONEDA, R. SUGAWARA	1295
Stability of High- T_c Superconducting Bus Bar	
T. KATO, K. SATO, T. ANDO, T. ISONO, H. TSUJI	1299
Development of 3-Phase 1kA Class High T_c Superconducting Power Cable Prototype	
T. SHIBATA, J. FUJIKAMI, S. ISOJIMA, K. SATO, H. ISHII, T. HARA	1303

Fabrication of the Model Cable Using Bi-2223 Ag Sheathed Tapes A. KUME, S. NAGAYA, T. SHIMONOSONO, M. NAKAGAWA, M. NAGATA, N. SADAKATA, T. SAITOH, O. KOHNO, M. ONO	1307
Estimation of Total Heat Leak into a Cryostat of Prospective Power Transmission Model System Integrated Under Superconducting Environment (PROMISE) Y. YOKOMIZU, H. SHIMIZU, T. KATO, Y.J. TANG, T. MATSUMURA, Y. KITO	1311
Development of the Termination for the 77kV-Class High T_c Superconducting Power Cable T. MASUDA, C. SUZAWA, S. ISOJIMA, T. SHIMONOSONO, S. NAGAYA	1315
Electromagnetic Behavior of HTSC Cable Conductor in ac Loading J. FUJIKAMI, N. SAGA, K. OHMATSU, T. SHIBATA, S. ISOJIMA, K. SATO, H. ISHII, T. HARA	1319
Difference of the Quench Current Level of a Multi-Twisted Superconducting Cable Due to the Direction of the Applied Magnetic Field H. SHIMIZU, T. KATO, Y.J. TANG, Y. YOKOMIZU, T. MATSUMURA, Y. KITO	1323
Magnetic Suspension Using Soft Magnetic Materials and High T_c Superconductor Y. TSUTSUI, N. KONDOU, T. HIGUCHI	1327
Availability of Superconducting Magnetic Levitation Using Ferromagnetic Materials and Permanent Magnet S. TORII, H. YOSHIKAWA, D. EBIHARA	1331
Electromagnetic Force Characteristics of Superconducting Bulk Magnet for Attractive-Type Magnetic Levitation H. OHSAKI, A. SENBA, H. KITAHARA, E. MASADA	1335
Influence of Magnet Quench on Running Characteristics of the Superconducting Magnetically Levitated Bogie S. OHASHI, K. HIGASHI, H. OHSAKI, E. MASADA	1339

8.2 Magnetic Shielding and Magnetic Bearing

Conceptual Design of Shield Coil for Medium Size SMES M. AIDA, S. NOZAKI, M. MASUDA	1345
Numerical Analysis on Magnetic Shielding Effects of Multiple-Layer Superconducting Plates A. KAMITANI, T. YOKONO, M. SHIBATA, G. MIZUOCHI, S. OHSHIMA	1349
Magnetic Shielding Experiments of Powdered Oxide Superconductors H. SHIMIZU, S. TORII, D. EBIHARA	1353
Open Type Magnetic Shields by High T_c Superconducting Cylinders K. HASEGAWA, H. ITOZAKI, H. KADO	1357
Investigation of Superconducting Joint of Overlapped Two Plates G. MIZUOCHI, S. OHSHIMA, K. OKUYAMA, T. YOKONO, A. KAMITANI	1361

Tests on Small Sized Rotary Model of Flywheel with High Temperature Superconducting Magnetic Bearings M. MINAMI, S. NAGAYA, N. HIRANO, H. KAWASHIMA, H. SEKIMOTO	1365
Numerical Analysis of the Levitation Force in HTSC Superconducting Levitation System of a Flywheel Y. LUO, K. DEMACHI, Y. YOSHIDA, K. MIYA, H. HIGASA	1369

8.3 Other Applications

Sugar Content Detection in Watermelon T. MIKI, K. SAITO, S. HAYASHI, H. KAJIKAWA, M. SHIMADA, R. OGAWA, K. KAWATE, T. NISHIZAWA, D. IKEGAYA, N. KIMURA, K. TAKABATAKE, N. SUGIURA, M. SUZUKI	1375
Non-Destructive Void Detection in Watermelon K. SAITO, T. MIKI, S. HAYASHI, M. SHIMADA, H. KAJIKAWA, R. OGAWA, Y. KAWATE, T. NISHIZAWA, D. IKEGAYA, N. KIMURA, N. SUGIURA, M. SUZUKI	1379

Contents of Volume 1

1 Plenary Lectures

2 Physics

- 2.1 Tunneling and Electron Spectroscopy
- 2.2 Transport and Thermal Properties
- 2.3 Magnetic Resonance, Neutron, and Mössbauer Studies
- 2.4 Optical and Ultrasonic Properties
- 2.5 Magnetic and Microwave Properties
- 2.6 Structural Properties
- 2.7 Theory

3 Chemistry

- 3.1 Homologous Layered Compounds
- 3.2 Oxygen and Carrier Doping
- 3.3 Phase Diagrams and Processing
- 3.4 Non-cuprate Materials

4 Flux Pinning

- 4.1 Flux Observation
- 4.2 Flux Pinning and Flux Dynamics
- 4.3 Electromagnetic Properties

Author Index

Key Word Index