

CONTENTS LIST

PART ONE

SPONSORS	xxxii
COMMITTEE MEMBERS	xxxii
EXHIBITORS	xxxiii
FOREWORD	xxxiv
TECHNICAL SUMMARY OF THE MT-15 CONFERENCE	xxxv

Plenary Lectures

The Present Status of LHC <i>L.R. Evans</i>	1
Status of the International Thermonuclear Experimental Reactor Design and R&D Program <i>R.J. Thome</i>	6
Magnet Technology in the United States <i>Hans J. Schneider-Muntau</i>	12
SMES Progress <i>Klaus-Peter Juengst</i>	18
HTS Wires and Application Progress <i>K. Sato, K. Hayashi, K. Ohkura and K. Ohmatsu</i>	24
Development and Application of the Magnet Technology in China <i>Luguang Yan</i>	30
Status of RHIC Construction <i>P. Wanderer</i>	36
Yamanashi Maglev Test Line and Electromagnetic Characteristics of Superconducting Maglev <i>Shunsuke Fujiwara</i>	43

Magnets for Accelerators and Detectors

	Nuclotron-Technology of Low-Cost Superconducting Magnetic Systems for Synchrotrons and Colliders <i>N.N. Agapov, A.M. Baldin, H.G. Khodzhbagiyani, A.D. Kovalenko, A.A. Smirnov and I.A. Shelaev</i>	100
	Nb ₃ Sn Insertion Coils for the Magnet Development <i>M. Wake, T.S. Jaffery, T. Shintomi, K. Mimori, H. Sugawara, R.M. Scanlan, A.D. McInturff and A.F. Lietzke</i>	103
47	Novel Undulator Magnet for Synchrotron Radiation and Free Electron Laser <i>G. Lee</i>	107
51	Field Quality Analysis as a Tool to Monitor Magnet Production <i>R. Gupta, M. Anerella, J. Cozzolino, D. Fisher, A. Ghosh, A. Jain, W. Sampson, J. Schmalzel, P. Thompson, P. Wanderer and E. Willen</i>	110
55	Present State of the Single and Twin Aperture Short Dipole Model Program for the LHC <i>N. Andreev, K. Artoos, T. Kurtyka, D. Leroy, L. Oberli, D. Perini, S. Russenschuck, N. Siegel, A. Siemko, D. Tommasini, I. Vanenkov, L. Walckiers and W. Weterings</i>	115
59	Design Features and Performance of a 10T Twin Aperture Model Dipole for LHC <i>D. Leroy, L. Oberli, D. Perini, A. Siemko and G. Spigo</i>	119
63	Design, Fabrication and Initial Testing of a Large Bore Single Aperture 1 m Long Superconducting Dipole Made with Phenolic Inserts <i>G. Kirby, J. Lucas, R. ostojic, S. Russenschuck, A.Siemok, I. Vanenkov, W. Weterings, H. Boschman and R.L. Dubbeldam</i>	123
67	Design, Manufacturing Aspects and Performance of Recent 10 m Long Model Dipole Superconducting Magnets for the LHC Project <i>L. Bottura, O. Pagano, R. Perin, D. Perini, F. Savary, A. Siemko, G. Spigo, J. Vlogaert and L. Walckiers</i>	127
71	Status of the Construction of the First 15 m Long Superconducting Dipole Prototype for the LHC <i>M. Bona, R. Perin and L. Rossi</i>	132
76	A 10 T Nb ₃ Sn Model Separator Dipole Magnet for the CERN LHC <i>A. den Ouden, H.H.J. ten Kate, G. Kirby and T. Taylor</i>	137
81	Saturation Induced Field Errors in the LHC Main Dipoles <i>C. Paul, S. Russenschuck, N. Siegel and K. Preis</i>	141
84	Magnetic Field Quality of Short Superconducting Dipole Model Magnets for LHC <i>Z. Ang, L. Bottura, D. Tommasini and L. Walckiers</i>	145
88	Mechanical Behaviour of the Short Models of LHC Main Dipole Magnets <i>N. Andreev, K. Artoos, E. Casarejos, T. Kurtyka, , C. Rathjen, D. Perini N. Siegel, D. Tommasini and I. Vanenkov</i>	149
92	Quench Test Results of the MTP1A2 Twin Aperture Superconducting Dipole Model Magnet for LHC <i>A. Siemko, M. Bona, D. Leroy, R. Perin, F. Rodriguez-Mateos, R. Saban, P. Sievers, J. Vlogaert and L. Walckiers</i>	153
96	Field Errors Introduced by Eddy Currents in Fermilab Main Injector Magnets <i>D.G.C. Walbridge, B.C. Brown, J.E. Dimarco, J.M. Nogiec, S.A. Sharonov, and J.W. Sim</i>	157
	Hybrid Permanent Magnet Gradient Dipoles for the Recycler Ring at Fermilab <i>B.C. Brown, J. Dimarco, G.W. Foster, H.D. Glass, J.E. Haggard, D.J. Harding, G.P. Jackson, M.P. May, T.H. Nicol, J.-F. Ostiguy, P. Schlabach and J.T. Volk</i>	161
	New Types of Superconducting Magnet Designs for High Energy Collider <i>M. Wake and R. Yamada</i>	
	Development of High Field Dipole Magnets for Future Accelerators <i>S. Caspi, K. Chow, D.R. Dietderich, A.F. Lietzke, A.D. McInturff and R.M. Scanlan</i>	
	Development of 56mm Aperture Superconducting Dipole Model Magnet for LHC <i>T. Nakamoto, T. Shintomi, A. Yamamoto, Y. Doi, T. Haruyama, N. Higashi, M. Iida, H. Kawamata, N. Kimura, V. Kovachev, Y. Makida, H. Ohhata, N. Ohuchi, T. Ogitsu, S. Sugawara, K. Tanaka, A. Terashima and K. Tsuchiya, R. Perin, D. Leroy, K. Mkishima, T. Orikasa, and A. Tanaka</i>	
	Development of a Superconducting Insertion Quadrupole Model Magnet for the Large Hadron Collider <i>A. Yamamoto, T. Nakamoto, A. Terashima, E. Burkhardt, N. Higashi, H. Kawamata, N. Kimura, V. Kovache, T. Ogitsu, N. Ohuchi, T. Shintomi, R. Tanaka, K. Tsuchiya, G.A. Kirby, R. Ostojic and T.M. Taylor</i>	
	Mechanical Design and Characteristics of a Superconducting Insertion Quadrupole Model Magnet for the Large Hadron Collider <i>G.A. Kirby, R. Ostojic, T.M. Taylor, I. Vanenkov, T. Nakamoto, A. Terashima, N. Higashi, H. Higashi, H. Kawamata, T. Ogitsu, T. Shintomi, K. Tanaka, K. Tsuchiya and A. Yamamoto</i>	
	Coldmass for LHC Dipole Insertion Magnets <i>R. Gupta, R. Alforque, M. Anerella, E. Kelly, S. Plate, C. Rufer, P. Wanderer, E. Willen and K.C. Wu</i>	
	Status Report on the CMS Magnet Project at LHC <i>D. Campi, J.P. Grillet, A. Herve, S. Horvath, P. Fabbriatore, F. Kircher, J.C. Lottin and R. Loveless</i>	
	An Ultra-thin Detector Magnet for Rare Meson-decay Physics <i>R.J.M.Y. Ruber, H. Calén, A. Yamamoto, H. Yamaoka, Y. Makida, N. Kimura, K. Tanaka, M. Iida, H. Ohhata, H. Hirabayashi, N. Takasu, T. Doi and S. Abe</i>	
	6 Tesla Superconducting Wiggler <i>A.V. Dudarev, V.E. Keilin, Yu.A. Ilyin, N.P. Kopeikin, I.O. Shugaev, V.V. Stepanov, N.Q. Liu, W. Zhang, D.K. Jiang, H.P. Yan and L.Z. Cao</i>	
	A Planar/Helical Electromagnetic Crossed Overlapped Undulator at LURE <i>M. Corlier, P. Brunelle, C. Herbeaux, O. Marcouillé, J.-L. Marlats, F. Marteau, J. Michaut, P. Peaupardin, M. Sommer, J. Vétéran and L. Nahon</i>	
	Magnet Systems for Investigation of Surfaces Emitting Charged Particles <i>N.S. Babayev, E. Yu. Klimenko, A.I. Markin, E.P. Polulyakh and V.E. Cherkovets</i>	
	Progress in the Design of the Barrel Toroid Magnet for the ATLAS Experiment and Associated R & D at CEA-Saclay and INFN-Milano <i>A.Daël, J. Belorgey, C. Berriaud, R. Berthier, D. Cacaut, H. Desportes, B. Gallet, B. Gastineau, M. Jacquemet, F.P. Juster, C. Lesmond, C. Mayri, Y. Pabot, J.M. Rey, H. van Hille, Z. Sun, E. Acerbi, F. Alessandria, G. Ambrosio, F. Broggi, L. Rossi, M. Sorbi and G. Volpini</i>	
	Engineering Design of the Superconducting End Cap Toroid Magnets for the ATLAS Experiment at LHC <i>D.E. Baynham, J. Butterworth, F.S. Carr, R.C. Coombs, M.J.D. Courthold, D.A. Cragg, N.H. Cunliffe, C.J. Densham, D. Evans, S.J.Gamage, E. Holtom, S.J. Robertson, D. Sole and E.F. Towndrow</i>	

Study of SC Dipoles with All Polyimide Cable Insulation <i>N.I. Andreev, S.S. Kozub, K.P. Myznikov, V.V. Sytnik and A.V. Zlobin</i>	165
Status of the Cold Mass of the Short Straight Section for the LHC <i>J.M. Rifflet, M. Peyrot, P. Vedrine, P. Rohmig and T. Tortschanoff</i>	168
Magnetic Field Analysis of the First Short Models of a High Gradient Quadrupole for the LHC Interaction Regions <i>G. Sabbi, J.B. Strait, A.V. Zlobin and S. Caspi</i>	171
Design of a Nb ₃ Sn High Gradient Low-Beta Quadrupole Magnet <i>S. Caspi, K. Chow, A.F. Lietzke, A.D. McInturff, M. Morrison, R.M. Scanlan, G. Ambrosio, G. Bellomo, F. Broggi and L. Rossi</i>	175
Study of the Nb ₃ Sn Cable Characteristics for SC-Quadrupole with High Gradient <i>I.V. Bogdanov, L.M. Vassiliev, V.I. Gridasov, S.S. Kozub, K.P. Myznikov, P.I. Slabodchikov, V.V. Sytnik, L.M. Tkachenko, P.A. Shcherbakov, A.E. Vorobieva, A.D. Nikulin, A.G. Silaev, A.K. Shikov, E.Yu. Klimenko, S.I. Novikov and M.S. Novikov</i>	179
Hybrid Permanent Magnet Quadrupoles for the Recycler Ring at Fermilab <i>B.C. Brown, S.M. Pruss, G.W. Foster, H.D. Glass, D.J. Harding, G.P. Jackson, M.P. May, T.H. Nicol, J.-F. Ostiguy, P. Schlabach and J.T. Volk</i>	183
Thermal Performance Analysis of the High Gradient Quadrupoles for LHC <i>Y. Huang, J. Kerby, T.J. Peterson and A.V. Zlobin</i>	187
Fabrication of the First Short Model of a High Gradient Quadrupole for the LHC Interaction Regions <i>R. Bossert, J. Brandt, J. Carson, J. Dimarco, S. Feher, S.A. Gourlay, T. Heger, Y. Huang, J. Kerby, M.J. Lamm, P.J. Limon, P.O. Mazur, F. Nobrega, I. Novitski, D. Orris, J.P. Ozelis, T.J. Peterson, B. Robotham, G. Sabbi, P. Schlabach, J.B. Strait, M. Tartaglia, J.C. Tompkins, V. Yarba, A.V. Zlobin, S. Caspi, A.D. McInturff, R. Scanlan, A. Ghosh and R. Gupta</i>	191
Wide Aperture Conventional Quadrupole for the t ₂₀ Experiment at CEBAF <i>O. Delferriere, C. Evesque, J.P. Penicaud and M. Garcon</i>	195
FE Stress Analysis of the CMS Magnet Coil <i>A. Calvo, A. Desirelli, P. Fabbriatore, S. Farinon, J.C. Lottin, C. Pes, S. Sgobba, J.M. Rey and P. Rodiere</i>	199
Design and Development of Triangle Coil Supports for the ATLAS Superconducting Solenoid Magnet <i>H. Yamaoka, A. Yamamoto, Y. Makida, K. Tanaka, T. Konda, A. Nishikawa and Y. Toda</i>	204
Running Experience with the Hexagonal Toroidal Air-Core Magnet of the CHORUS Neutrino Detector <i>F. Bergsma, F. Cataneo, W. Flegel, H. Gerwig, P.A. Giudici, J. Panman, G. Petrucci, C. Rosset, Ch. Weinheimer and H. Wong</i>	208
Full Field Factory Test of Finuda Superconducting Magnet <i>M. Losasso and R. Penco</i>	212
Installation and Final Commissioning of the KLOE Solenoid for the DAΦNE Ring at INFN Frascati <i>A.J. Broadbent, M. Greenslade, S.M. Harrison, D.M. Jenkins, J.S.H. Ross, K.D. Smith, J.M. Wiatrzyk and P. Franzini</i>	216
The Development of the Wide Aperture Corrector Dipoles for LHC <i>D.E. Baynham, M. Brown, R.C. Coombs, A. Ijspeert and M. Karppinen</i>	220

The Development of the Inner Triplet Dipole Corrector (MCBX) for LHC <i>M. Karppinen, A. Ijspeert, N. Hauge and B.R. Nielsen</i>	224
Experience with the Fabrication and Testing of the Sextupole Superconducting Corrector Magnets for the LHC <i>J. Salminen, A. Ijspeert, Z. Ang, J. Billan, L. Walckiers, S. Bapna, M. Karmarkar, A. Puntambekar, A. Thipsay and L. Garcia-Tabarés</i>	228
Magnetic-Field Feedback Control of the DC and AC Power Supplies <i>K. Endo and F.Q. Zhang</i>	232
Design Studies on High-Performance Magnets for Accelerators <i>K. Hatanaka, S. Ano, T. Itahashi, M. Kibayashi, S. Nakaso, T. Ohishi, T. Saito, K. Sato, A. Shimizu, Y. Takahashi, H. Tamura, K. Tamura, T. Yamazaki, K. Noda, S. Yamada, S. Fukumoto and H. Inoue</i>	235
The Decay of the Field Integral in Superconducting Accelerator Magnets Wound with Rutherford Cables <i>R. Wolf</i>	238
Development of Radiation-Resistant Magnet Coils for High Intensity Beam Lines <i>K.H. Tanaka, Y. Yamanoi, M. Ieiri, H. Noumi, M. Minakawa, H. Ishii, Y. Katoh, Y. Suzuki, M. Takasaki, Y. Saitoh, K. Yahata, K. Katoh, N. Shinozuka, S. Tsukada, M. Seido and Y. Shinohara</i>	242
First SC Inflector for BNL Muon g-2 Experiment <i>A. Yamamoto, Y. Makida, K. Tanaka, Y. Saito, T. Ozawa, Y. Tachiya, H. Tanaka, G. Bunce, G.T. Danby, J. Geller, L. Jia, M. Mapes, W. Meng, W. Morse, C. Pai, A. Pendzick, R. Prigl, W.B. Sampson, J. Sandberg, T. Tallerico, F. Toldo, F. Krienen, B.L. Roberts, I. Itoh, H. Otsuka, A. Grossmann, U. Haebleren, K. Jungmann, G. zu Putlitz, S. Dhawan, M. Gross-Perdekamp, V. Huges, D. Kawall and S. Redin</i>	246
Field Calculations and Measurements of a Helical Snake Magnet for RHIC <i>M. Okamura, T. Tominaka, T. Kawaguchi, A. Jain, R. Thomas and E. Willen</i>	250
Study of Low-β Quadrupole Magnet with Inter-Layer Quench Protection Heaters <i>S. Feher, R. Bossert, J. Dimarco, M.J. Lamm, P.J. Limon, F. Nobrega, D. Orris, J.P. Ozelis, J. Strait, J.C. Tompkins and A.V. Zlobin</i>	254
A 6T He-Free Superconducting Solenoid for RI Beam Production <i>T. Kawaguchi, J.W. Kim, T. Kubo, Y. Imai and T. Minato</i>	258
Development of a Cryogen-Free Superconducting Dipole Magnet <i>Y. Sato, K. Makishima, S. Mizumaki, A. Yamamoto, S. Moriyama, Y. Inoue, M. Minowa, T. Namba and Y. Takasu</i>	262
SPIRAL Project: Status of the Cyclotron <i>M. Duval, M.P. Bourgarel, A. Lemarié and F. Ripoubeau</i>	266
Novel Magnet Design for High Efficiency Storage Ring Accelerator Used in Synchrotron Radiation and Free Electron Laser <i>G. Lee and Y. Wei</i>	270
Novel PM Dipole Magnet Design for NSRL 800MeV Synchrotron Radiation Storage Ring <i>G. Lee</i>	275
PM Multipole Magnet Design for NSRL 800MeV Synchrotron Radiation Storage Ring <i>G. Lee</i>	279
Magnetic Field Measurements of the Superconducting Magnets for KEKB Interaction Region <i>N. Ohuchi, T. Ogitsu, K. Tsuchiya, Y. Ajima, T. Ozaki and H. Kawamata</i>	283

Manufacturing of a Superconducting Solenoid Magnet for the BELLE Detector in the B-Factory at KEK <i>H. Mukai, S. Kurita, K. Makishima, Y. Makida, M. Kawai, H. Yamaoka and A. Yamamoto</i>	287
Design and Performance of the PEP-II B-Factory HER QD4 Quadrupole Magnet <i>J. Swan, D. Behne, C.M. Kendall, R. Yamamoto, T. Yokota and J. Tanabe</i>	291
Design and Analysis of the PEP-II B-Factory HER QF5 Quadrupole Magnet <i>C.M. Kendall, A. Harvey, J. Swan, R. Yamamoto, T. Yokota, J. Tanabe, M. Sullivan and U. Wienands</i>	295
Design Study of the Superconducting Magnets for the Injection System of the Superconducting Ring Cyclotron <i>H. Okuno, T. Tominaka, S. Fujishima, A. Goto and Y. Yano</i>	299
Design of the Sector Magnets for the RIKEN Superconducting Ring Cyclotron <i>T. Kawaguchi, T. Kubo, T. Mitsumoto, H. Okuno, T. Tominaka, J.W. Kim, S. Fujishima, K. Ikegami, N. Sakamoto, S. Yokouchi, T. Morikawa, Y. Tanaka, A. Goto and Y. Yano</i>	303
End Compensation Scheme for an Undulator Configured with Strong On-Axis Magnetic Field Strength <i>Ch. Wang, T.C. Fan, L.H. Chang, P.H. Chang, C.H. Chang and J. Chen</i>	307
The Magnetic Field Feature Study of a Variably Polarized Undulator Under Different Operation Modes <i>C.S. Hwang, C.H. Chang, S. Yeh and T.C. Fan</i>	310
Optimization Design for SRRC Elliptically Polarizing Undulator <i>C.H. Chang, Ch. Wang, C.S. Hwang, T.C. Fan, H.H. Chen, M.H. Hwang, P.K. Pan, F.Y. Lin, S.T. Yeh, L.H. Chang and M.C. Lin</i>	313
Magnetic Measurement of PLS U7 Undulator <i>K.H. Park, D.E. Kim, W.W. Lee, J.S. Bak and B.K. Kang</i>	316
Preliminary Conceptual Design of a Superconducting Dipole Bending Magnet for Shanghai Synchrotron Radiation Facility <i>Y.J. Yu, Z.X. Feng, Z.Y. Gao, Z.K. Wang, Y.M. Dai and L.G. Yan</i>	320
Review on Advanced Superconducting Wiggler Magnets <i>D. Krischel, M. Schillo, A. Hobl and A. Geisler</i>	323
Modeling on Quench Properties in the Nb ₃ Sn Cable-in-Conduit Conductor <i>Q.L. Wang, S.S. Oh, Y.K. Kwon and K.S. Ryu</i>	327
The Superconducting Solenoid for the BaBar Experiment at PEP-II in SLAC <i>P. Fabbriatore, S. Farinon, R. Musenich, C. Priano, T.G. O'Connor, R.A. Bell, W. Burgess, W. Craddock, R. Penco and P. Valente</i>	331
Normal Mode and Common Mode Impedance of an Accelerator Magnet String as a Sum of Partial Fractions <i>M. Kumada, E. Takada, K. Noda, M. Kanazawa, S. Yamada, K. Sato and S. Matsumoto</i>	335
Quench Characteristics of the 11T Nb ₃ Sn Model Dipole Magnet MSUT <i>A. den Ouden, H. ten Kate, A. Siemko, P. Sievers and L. Walckiers</i>	339

Magnets for Fusion

International Thermonuclear Experimental Reactor (ITER) Magnet System Design <i>C. Sborchia, R. Gallix, C.T.J. Jong, Y. Krivchenkov, B. Stepanov, R.J. Thome, K. Yoshida, A. Alekseev, A. Malkov, M. Sugimoto and P. Titus</i>	343
Conductor Development for the ITER Magnets <i>N. Mitchell, D. Bessette, K. Okuno, G. Bevilacqua, E. Salpietro, P. Bruzzone, M. Spadoni, M. Ricci, H. Nakajima, Y. Nunoya, M. Sugimoto, T. Isono, Y. Takahashi, A. Shikov, V. Sytnikov, J. Minervini and R. Randall</i>	347
Construction of a Toroidal Field Model Coil (TFMC) for ITER <i>E. Salpietro, R. Maix, G. Bevilacqua, G. Di Bartolo, H. Fillunger, G. Malavasi, N. Mitchell, M. Spadoni, A. Della Corte, A. Ulbricht, B. Turck and P. Libeyre</i>	353
Design and Fabrication of ITER CS Model Coil Inner Module and Support Structure <i>R. Jayakumar, R. Beck, R. Childs, C.Y. Gung, D. Gwinn, J.V. Minervini, D.B. Montgomery, R. Randall, B. Smith, J. Wohlwend, P. Gertsch, L. Hawley, R. McCool, D. Paganini, N. Martovetsky, J. Zbasnik, K. Okuno and R. Vieira</i>	357
Central Solenoid Model Coil Outer Module: Design and Fabrication <i>H. Nakajima, H. Tsuji, T. Ando, T. Kato, K. Hamada, Y. Takahashi, M. Sugimoto, T. Hiyama, Y. Akinou, K. Azuma, K. Ishio, T. Isono, K. Imahashi, Y. Uno, T. Ohuchi, K. Ohtsu, J. Okayama, M. Oshikiri, T. Omine, T. Kawasaki, K. Kawano, M. Kawabe, H. Kubo, K. Kuramochi, N. Koizumi, K. Sawada, T. Shimizu, T. Shinba, S. Seki, S. Sekiguchi, T. Tairaku, K. Takano, Y. Takaya, F. Tajiri, M. Taneda, T. Tamiya, M. Tange, F. Tsutsumi, A. Terasawa, T. Terakado, Y. Nunoya, H. Hanawa, J. Harada, K. Matsui, Y. Miura, K. Yamamoto, H. Wakabayashi, R. Thome, K. Okuno, R. Vieira, O. Ohsaki, T. Fujioka, A. Ozaki and S. Shimamoto</i>	361
ITER Model Coil Test Program <i>K. Okuno, R. Vieira, D. Bessette, B. Stepanov, R. Jayakumar, N. Martovetsky, H. Tsuji, T. Ando, T. Isono, E. Salpietro, A. Ulbricht, J.L. Duchateau and S. Egorov</i>	365
Towards Steady State Operation: Main Results and Perspectives of the Tokamak TORE SUPRA <i>B. Turck</i>	369
The Test of the EURATOM LCT Coil at the Outermost Limits at 1.8 K as Example of Single Coil Testing of D Shaped Toroidal Field Coils <i>M. Darweschad, G. Friesinger, A. Grünhagen, R. Heller, W. Herz, B. Kneifel, P. Komarek, W. Maurer, R. Meyer, G. Noether, S. Raff, M. Suesser, A. Ulbricht, F. Wüchner and G. Zahn</i>	373
Assembly of the Superconducting Coils and the Cryostat for the Large Helical Device <i>T. Satow, S. Imagawa, H. Tamura, K. Takahata, N. Yanagi, S. Yamada, T. Mito, A. Nishimura, H. Chikaraishi, A. Iwamoto, R. Maekawa, K. Yamazaki, H. Yamada, S. Yamaguchi, T. Morisaki, S. Sakakibara, S. Masuzaki, A. Komori, N. Inoue, K. Nishimura, I. Ohtake, M. Iima, H. Hayashi, H. Yonezu, S. Tanahashi, S. Satoh O. Motojima and LHD Group</i>	377
The Project of HT-7U and its Progress <i>S.T. Wu and P.D. Weng</i>	381
Analysis and Tests in Support of Upgrading the JET Toroidal Field to 4 Tesla <i>J.R. Last, E. Bertolini, M. Buzio, J. Jeskins, P. Miele, S. Papastergiou, P. Presle and V. Riccardo</i>	385

Design, Construction and Test of the AMS Permanent Magnet <i>P.C. Xia, Z.R. Dong, D.X. Zhao, T. Song and Y.M. Du</i>	389
Status of the Manufacturing of the European Union Conductor for the ITER TF Model Coil <i>A. della Corte, M.V. Ricci, M. Spadoni, G. Bevilacqua, R.K. Maix, E. Salpietro, S. Conti, R. Garrè and S. Rossi</i>	393
TF Conductor Insert Coil for Testing in the ITER Central Solenoid Model Coil <i>O. Filatov, V. Belyakov, S. Egorov, E. Bondarchouk, Yu. Konstantinov, D. Akopian, I. Rodin, A. Malkov, Yu. Sokolov, V. Yakubovsky, S. Krasnov, M. Mikhailov, A. Cherdakov, Yu. Spirchenko, K. Egorov, R. Chvartatsky, S. Gavrilov, V. Vasiliev, N. Shatil, M. Zhelamsky, V. Korsunsky, T. Gurieva, P. Chaika, M. Astrov, S. Fedotova, V. Egorova, L. Dinaburg, V. Dubasov, V. Marshev, D.V. Efremov, A. Shikov, A. Silaev, A. Vorobijova, A. Nikulin, N. Gryaznov, V. Sytnikov, A. Richagov, A. Taran, Yu. Ipatov, E. Koshurnikov, K. Okuno, N. Mitchell, R. Vieira, B. Stepanov, R. Jayakumar, N. Martovetsky, H. Tsuji, T. Ando and T. Kato</i>	397
Cold Test of the ITER Nb ₃ Sn Toroidal Field Coils <i>D. Bessette and Y. Krivchenkov</i>	401
Development of Winding Technique for ITER CS Model Coil <i>K. Hamada, H. Nakajima, T. Kato, T. Ando, K. Yamamoto, H. Tsuji, S. Shimamoto, M. Hiragishi, T. Sasaki and J. Inagaki</i>	405
Development of CS Insert Coil <i>M. Sugimoto, A. Terasawa, T. Isono, N. Koizumi, H. Nakajima, T. Kato, Y. Nunoya, K. Matsui, Y. Takahashi, T. Ando, H. Tsuji, S. Shimamoto, K. Okuno, T. Ichihara, T. Minato, B. Ikeda and T. Murai</i>	409
Stability Simulation of 46-kA and 13-T Nb ₃ Al Insert Coil <i>N. Koizumi, K. Azuma, T. Ando, Y. Takahashi, H. Tsuji, Y. Kuchiishi, K. Asano and K. Okuno</i>	413
Quench Analysis of 46kA-13T Nb ₃ Al Insert Coil <i>K. Takeuchi, H. Tsukamoto, Y. Kuchiishi, K. Asano, N. Koizumi, T. Ando, K. Azuma, H. Tsuji and K. Okuno</i>	417
Development of Joints in Europe for the ITER TFMC <i>P. Libeyre, D. Ciazynski, P. Decool, E. Salpietro, R. Maix, H. Fillunger, A. Bonito Oliva, B. Crepel and R. Kreuz</i>	421
Fabrication and Pulsed Field Tests of the US-ITER Preprototype Joint <i>C.Y. Gung, P.C. Michael, A. Zhukovsky, A. Radovinsky, J.V. Minervini and S.S. Shen</i>	425
Analysis of US Preprototype Joint dc Performance <i>P.C. Michael, A. Radovinsky, C.Y. Gung, and N.N. Martovetsky</i>	429
International Thermonuclear Experimental Reactor (ITER) Magnet Interface System <i>F. Iida, K. Yoshida, S. Stoner and A. Tesini</i>	433
Design of Superconducting Coil Interface Components for ITER Magnet System <i>M. Taneda, Y. Yasukawa, M. Nozawa, T. Kato, T. Honda, K. Hamada, H. Tsuji, K. Yoshida, F. Iida, H. Hiue, M. Tatsukawa and K. Sakaki</i>	437
A Press for Mechanical and Electrical Testing of Full-Size ITER Conductors under Transverse Loading <i>A. Nijhuis, N.H.W. Noordman, H.H.J. ten Kate, N. Mitchell and P. Bruzzone</i>	441
Disturbances and Margins for the ITER Conductors in Pulsed Operation <i>P. Bruzzone</i>	445

Effect of Perturbation Length on the Stability of a Cable-in-Conduit Conductor <i>N. Koizumi, K. Azuma, M. Nishi, K. Macfall, Y. Takahashi, H. Tsuji and N. Mitchell</i>	449
Analysis of the Current Imbalance in a Large CICC Consisting of Chrome Plated Strands <i>N. Koizumi, Y. Takahashi, T. Kato, H. Tsuji, M. Ono, T. Hamajima and M. Takayasu</i>	453
The Influence of Electrical & Mechanical Properties of Co-axial Cable on Coupling Losses and Stability <i>M. Ono, T. Hamajima, M. Hiragishi, Y. Wachi, H. Maeda and T. Fujioka</i>	457
Increase of AC Losses for the Asymmetrically Transposed Superconducting Cable due to the Non-uniform Current Distribution between the Strands <i>N. Hirano, T. Mito, K. Takahata, A. Iwamoto, R. Maekawa, S. Satoh, F. Sumiyoshi, S. Kawabata and A. Kawagoe</i>	461
Construction of Tokamak Device with Force-Balanced Coil <i>J. Kondoh, K. Fujii, A. Sato, S. Tsuji-Iio and R. Shimada</i>	465
Electromechanical Design of the Compensation Coils of the RFX Machine <i>F. Bellina</i>	469
Research Work of Cryogenic and Superconducting Magnet on Fusion and Other Applications at SWIP <i>H.X. Li, M. Pu and X.W. Zhu</i>	473
Preliminary Design of Toroidal Field Coils and Conductors for Superconducting Tokamak HT-7U <i>Z.M. Chen, Y.N. Pan, Y.F. Bi, Y.H. Zhu, J. Yu and P.D. Weng</i>	477
FEB Magnet System <i>Z.J. Guo and W.N. Xu</i>	481
The Poloidal Field Coil System for the HT-7U <i>B.Z. Li, W.Y. Wu, Z.J. Guo, Y.F. Bi, D. Wu, Y.H. Zhu, S.T. Wu and P.D. Weng</i>	484
Design of KSTAR Central Solenoid Model Coil <i>S.H. Kim, Yong H. Kim, Young H. Kim, H.S. Kim and K.H. Chung</i>	488
Fabrication of KSTAR Central Solenoid Model Coil (I) <i>S.H. Kim, Young H. Kim, Yong H. Kim, H.S. Kim and K.H. Chung</i>	491
Magnets for Power Engineering Applications	
SMES Compensator for Fluctuating Loads <i>K.P. Juengst, H. Salbert and O. Simon</i>	494
SMES System for Photovoltaic Energy <i>I. Muta and T. Hoshino</i>	498
Experimental Study on kA-Class Persistent Current Mode Operation <i>H.L. Nan, Y.J. Yu, S.S. Song, S.L. Wang, Z.X. Ye, P. Ye, J. Qin, Y.M. Dai, C.M. Lee, S.Y. Park and Y.U. Sohn</i>	502
Autonomous Superconducting Magnet Systems - New Conception for Applications with Special Conditions <i>V.S. Vysotsky, N.A. Chernoplekov, A.A. Konjukhov, G.S. Kurljandtsev, V.R. Karasik, M.V. Sidorov and V.N. Tsikhon</i>	506

Design Principles of a High Temperature Superconducting Rotating Electrical Machine <i>I. Vajda, S. Semperger, I. Városi, A. Szalay and N. Goebel</i>	510
Development of Magnetic Shield Type High Tc Superconducting Fault Current Limiter with Active Trigger Coil and its Current Limiting Performances <i>T. Onishi, A. Nii and S. Yamazaki</i>	514
Study on Transient Magnetic Field and Electromagnetic Force in Superconducting Generator <i>E. Mukai, T. Yano and I. Muta</i>	518
A Method to Estimate the Stability of Rotor Winding of Superconducting Generator in Rotating Condition <i>O. Tsukamoto, M. Furuse, T. Takao, M. Morita and T. Hirao</i>	522
Transient Heat Transfer of Liquid Helium in Rotating Machines <i>S. Fuchino, I. Ishii, N. Tamada, O. Tsukamoto, M. Furuse and T. Takao</i>	526
The Characteristic Analysis of E.M.F. Induced by Moving Normal Spot in a Cylindrical Superconducting Foil <i>J.H. Bae, Y. Chu, T.K. Ko and T.S. Han</i>	530
Design Studies on Modified D-Shaped Toroidal Coils for a Medium Scale SMES <i>T. Ezaki, T. Suenaga, A. Kocho, Y. Horiuchi and F. Irie</i>	534
Experimental Results of a Cylinder Type Superconducting Coil for a 1kWh/1MW Module Type SMES System (ESK) <i>M. Konno, I. Itoh, T. Uede, A. Tomioka, T. Bohno, S. Nose, T. Imayoshi, H. Hayashi, Y. Yamamoto and F. Irie</i>	538
Experiment of Force-Balanced Coil for Superconducting Magnetic Energy Storage <i>Y. Sato, J. Kondoh, R. Shimada, M. Kyoto, S. Hanai and T. Hamajima</i>	542
Optimization of a Force-Balanced Coil for SMES <i>Y. Sato, S. Nomura, T. Osaki, J. Kondoh, R. Shimada, S. Hanai and T. Hamajima</i>	547
Quench Current Characteristics of Parallel Mechanical PCSs <i>S. Ohtsuka, T. Nakamura, D. Tsuji, J. Suehiro and M. Hara</i>	551
Electrical Power System Application Analysis of a High Tc Superconducting Fault Current Limiter <i>J.X. Jin, S.X. Dou, C. Grantham, Z.J. Zeng and D. Sutanto,</i>	555
Analysis of Superconducting to Normal Transition in BiSCCO 2212 Fibers for Current Limiters Applications <i>L. García-Tabarés, J. Calero, S. Portillo, P. Abramian, F. Toral, L.A. Angurel, C. Díez, X. Obradors and X. Granados</i>	559
Characteristics of Gas-Cooled HTS Current Leads for Superconducting Fault Current Limiters <i>S.B. Kim, S. Odaka, S. Noguchi, A. Ishiyama, S. Honjo, Y. Iwata and S. Shingo</i>	563
Current Distribution in 3-strand Superconducting Parallel Conductors <i>M. Iwakuma, H. Mori, A. Yoshimura, K. Kajikawa, T. Matsushita, K. Funaki, M. Konno, S. Nose, M. Ueyama, K. Hayashi and K. Sato</i>	567
Experimental Study on Superconducting Fault Current Limiter with Adjustable Trigger Current Level <i>K. Fujikawa, Y. Shirai, T. Nishikawa, T. Nitta, M. Fukunishi and T. Shibata</i>	571
Analytic Approaches to Quench Behavior of Superconducting Transformer <i>W.S. Nah, J.H. Joo and G.S. Cha</i>	575

Cryogenic Stabilization of AC Superconducting Magnet <i>K. Kaiho, H. Yamaguchi, K. Arai, T. Saito, N. Sadakata, H. Fuji and M. Yamaguchi</i>	579
Imitation of the Hysteresis Loops of Power Current Transformer Cores <i>L.Z. Zhang, B.D. Yu, Y.H. Yang and B.W. Hogg</i>	583
Study on Magnetic Losses and Their Separation Techniques <i>Q.X. Yang, W.L. Yan and W.Y. Zhang</i>	587
The Short Circuit Behavior of Axial Split Winding Type Transformers with Tertiary Winding <i>G.Q. Zhang, Y.L. Zhang, X. Cui and A.M. Wang</i>	590
Electromagnetic Analysis and Optimization of Permanent Magnet Canned Motor Pump <i>Z.F. Chen, C.Z. Sun, S.L. Yang and X.Z. Zhang</i>	594
Design and Construction of a Superconducting Current Feeder System for the LHD <i>S. Yamada, T. Mito, H. Chikaraishi, R. Maekawa, S. Tanahashi, S. Kitagawa, K. Nishimura, T. Satow, S. Satoh, O. Motojima, T. Uede, H. Hiue, Y. Yasukawa and I. Itoh</i>	598
Performance Test of the Linear Induction Motor for Urban Transit MAGLEV in Korea <i>H.K. Chung, B.S. Kim and H.J. Cho</i>	602
Design and Analysis on the Characteristics of the Linear Homopolar Synchronous Motor for Integrated Suspension/Propulsion System <i>S.M. Jang, S.S. Jeong and S.H. Lee</i>	606
Development of the Hoop Energy Storage System <i>K.C. Lee, S.H. Han, K.H. Chung, T.S. Moon and C.H. Cho</i>	610
Nb ₃ Sn Persistent Current Switch with a Current Capacity of 3kA <i>K. Nemoto, M. Tomita, K. Koyanagi, S. Nomura, S. Miyake, H. Hashiguchi and K. Sugawara</i>	613
The Simulation for the Improvement of the Switching Performance on Persistent Current Switch <i>S. Saito and K. Nemoto</i>	617
Development and Test on a Small Superconducting Transformer <i>Q.L. Fu, Q.M. Guan, L.Z. Xiang, D.Z. Wang, K. Xu and G.F. Luan</i>	621
The Electrical Insulation Study of High Voltage Current Leads for Superconducting Fault Current Limiter <i>X.D. Zhang, L.Z. Lin and Y.S. Han</i>	624
Pulsed Power Source based on the Experimental Superconducting Magnetic Energy Storage with Stored Energy up to 5 MJ for Railgun Installation <i>E.P. Polulyakh, A.V. Spiridonov, L.A. Plotnikova and V.A. Afanas'ev</i>	628
High Field Magnets, Pulse Magnets	
The NHMFL Hybrid Insert <i>M.D. Bird, S. Bole, Y.M. Eyssa, B.J. Gao and H.J. Schneider-Muntau</i>	631
Completion of the US NHMFL 60 T Quasi-Continuous Magnet <i>J.R. Sims, H.J. Boenig, L.J. Campbell, D.G. Rickel, J.D. Rogers, J.B. Schillig and H.J. Schneider-Muntau</i>	635

The NHMFL/GHMFL Resistive Magnet Collaboration <i>M.D. Bird, S. Bole, Y.M. Eyssa, B.-J. Gao, H.-J. Schneider-Muntau, G. Aubert, F. Debray, W. Joss, M. Ohl and P. Rub</i>	642
Testing of Carbon Composites using Systematic Failure of Pulse Magnets <i>P. Pernambuco-Wise, D.G. Rickel, Y. Eyssa, B.L. Lesch and H.J. Schneider-Muntau</i>	645
A Poly-Layer Reinforcement Scheme for Pulse Magnets <i>B.J. Gao, H.J. Schneider-Muntau, Y.M. Eyssa, M.R. Vaghar and P. Pernambuco-Wise</i>	648
A 60 T Pulsed Magnet with 10 μ s Risetime <i>L. Li, L. Van Bockstal and F. Herlach</i>	652
Design, Construction and Testing of the Wisconsin Pegasus Solenoid <i>P. Pernambuco-Wise, B.L. Lesch, H.J. Schneider-Muntau, T.P. Intrator, R.J. Fonck and G.R. Winz</i>	656
Design and Stress Analysis of Florida-Bitter Resistive Magnets <i>Y.M. Eyssa, M.D. Bird, B.J. Gao and H.-J. Schneider-Muntau</i>	660
NRIM/NHMFL Joint Development of a 30 T Magnet <i>M.D. Bird, S. Bole, Y.M. Eyssa, H.-J. Schneider-Muntau, T. Kiyoshi, T. Asano, Y. Sakai, K. Inoue and H. Wada</i>	664
Fabrication of a Model Coil and Vacuum Impregnation of Epoxy for the Outer Coil for a 45T Hybrid Magnet System <i>K.P. Hwang, D. Hartman, T. Hoang and G. Naumovich</i>	668
The Analysis of Quench Protection System from the Aspect of Thermo-Electrodynamics of Resistive Transition in Epoxy-Impregnated Superconducting Magnet <i>Y. Chu, J.H. Bae, H.M. Kim, T.K. Ko, S.S. Oh, S.K. Jung and K.M. Kim</i>	672
First Tests of the 27 T, 34 mm Bore, Radially Cooled Magnet <i>F. Debray, W. Joss and P. Rub</i>	676
Contact Resistance as a Function of Surface Finish Between Cu-Ag Bitter Disks <i>Y.S. Hascicek, B. Boutemy, O. Dur, W. Loffelbein, J. O'Reilly, M.D. Bird and Y.M. Eyssa</i>	680
Development of Large Scale CuAg Bitter Plates for the Hybrid Magnet <i>S. Miura, K. Watanabe, M. Motokawa, K. Sai, Y. Sasaki and M. Shimada</i>	683
Irreversible Inductance Change and the Plastic Deformation of High Field Pulsed Magnets <i>L. Li, F. Herlach, and L. van Bockstal</i>	687
25-30 T Water Cooled Pulse Magnet Concept for Neutron Scattering Experiment <i>Y.M. Eyssa, R.P. Walsh, J.R. Miller, P. Pernambuco-Wise, M.D. Bird, H.-J. Schneider-Muntau, H. Boeing and R.A. Robinson</i>	691
Mechanical Properties of Wound-Reinforcement and Fatigue Properties of CuAg _{16%} <i>M. van Sprang, M.G.N.M. Oudendijk and P.H. Frings</i>	695
Design, Construction and Testing of Pulse Magnets at the National High Magnetic Field Laboratory <i>P. Pernambuco-Wise, Y.M. Eyssa, B. Lesch, B.J. Gao and H.-J. Schneider-Muntau</i>	699
A 184 mm Bore Magnet for Space-Based Crystal Growth <i>M.D. Bird, S. Bole and Y.M. Eyssa</i>	703

Steady High Magnetic Field Facilities at ASIPP <i>J.L. Chen, L.R. Ding, F.T. Wang, W.F. Yuan, Z.M. Liu, Z.Y. Chen, S. Wang and B.J. Gao</i>	707
Large Horn Magnets at the KEK Neutrino Beam Line <i>Y. Yamanoi, M. Ieiri, Y. Suzuki, M. Minakawa, H. Noumi, Y. Kato, H. Ishii, K.H. Tanaka, M. Takasaki, K. Nishikawa, M. Kohama, T. Maruyama, T. Inagaki and S. Miyamoto</i>	711
Construction of BEPC mini- β Permanent Quadrupole Prototype <i>Q.L. Peng, Z.S. Yin, Y. Yang, C.T. Shi and J. Sun</i>	715
Research on "Three-No" Permanent Magnets <i>Y.M. Du, T. Song and P.C. Xia</i>	719
HTS Shim Coil Insert for Improved Homogeneity of the 20 Tesla Oxford Superconducting Magnet <i>Y.S. Hascicek, P. Kuhns, M.I. Godfrey, H.W. Weijers, Y. Eyssa, S.W. Van Sciver, W. Moulton, H.J. Schneider-Muntau, W. Dai, L. Cowey and K.R. Marken</i>	722
Development of Bi-2212/Ag Closed Circuit for 1 GHz-NMR Spectrometer <i>K. Fukushima, M. Okada, T. Kiyoshi, H. Kumakura, K. Togano, K. Inoue and H. Wada</i>	724
Magnets for Maglev and Magnetic Separation	
Magnet Design Technique for EMS Maglev System <i>I.K. Kim, M.H. Yoo, P.S. Shin and K.D. Ha</i>	728
Developments of a Superconducting Magnet and an On-board GM Refrigeration System for Maglev Vehicles <i>H. Nakao, T. Yamashita, Y. Sanada, M. Yamaji, M. Arata, M. Kawai, S. Nakagaki, T. Shudo, M. Takahashi, A. Miura, M. Terai, M. Igarashi, S. Inadama, T. Kurihara, K. Tomioka and M. Yamaguchi</i>	732
Effect of the Excitation System on the Electrical Characteristics of a Fully Superconducting AC Generator <i>H. Tsukiji, Y. Noguchi, T. Hoshino and I. Muta</i>	736
A Conceptual Design of High Voltage Superconducting DC Homopolar Machine <i>T. Ishigohka, A. Ninomiya, Y. Uriu, Y. Kanda and J. Sakuraba</i>	740
Open Gradient Magnetic Separator for Removal of Heavy Metals from Waste Water Based on a Cryogen Free Superconducting 5 T Magnet <i>M. Franzreb, K.P. Juengst, W.H. Hoell, J.A. Good and R. Hull</i>	744
Dry Magnetic Separation for Fine Particle of Wolframite Using Superconducting Open Gradient Field <i>X.L. Sun, G.S. Yuan and D.Z. Wang</i>	748
New Type of High Gradient Magnetic Separator for Use in Waste Water Treatment <i>M. Franzreb, P. Kampeis, K.P. Juengst and W.H. Hoell</i>	751
A Study on Optimum Method of Designing Magnet for High Gradient Magnetic Separator <i>P. Yang</i>	755
Investigation on Application of Superconducting High Gradient Magnetic Separation Technology to Ultra-fine Kaolin Clay <i>P. Yang, S.S. Song, S.T. Dai and L.G. Yan</i>	759

Measurement and Analysis of a HTSC Maglev Model Vehicle <i>Y. Zhang and S.G. Xu</i>	763
Some Considerations Using High T_c Bulk Superconductors for Mag-Lev Transportation Systems <i>S.Y. Wang, J.S. Wang and J.S. Lian</i>	767
Analysis of Force and Eddy Current of Moving Conductor in an Electromagnetic Suspension System <i>H.J. Zhang, Z.M. Wang and W.L. Yan</i>	770
Containment of Liquid Metal Flow Using a Superconducting Magnet <i>O.A. Shevchenko, H.H.J. ten Kate, A.V. Dudarev, Yu.A. Ilyin, A.V. Gavrilin, N.F. Kopeikin, V.V. Stepanov, I.O. Shugaev, V.E. Keilin, S. Primak, A.A. Shevchenko, A.F. Kolesnitchenko, M. Garnier and F. Block</i>	773
Design and Analysis of a Magnet for Urban Transit Maglev Vehicle (UTM-01) in Korea <i>H.K. Chung, B.S. Kim and P.S. Shin</i>	777

High T_c Superconducting Magnets

Design of HTS Magnets for μ -SMES Applications: Differences to Classical Principles <i>J. Paasi, M. Lahtinen, J. Lehtonen, R. Mikkonen, L. Söderlund, B. Connor and S.S. Kalsi</i>	
Progress in Iron Cored High- T_c Magnet Development for Electromagnetic Actuator Applications <i>P.E. Richens, H. Jones, R.M. Goodall, A.M. Campbell, D. Cardwell, D. Phillips and P. Haldar</i>	
Cryo-integrated HTS Ion-Beam Switching Magnet <i>D.M. Pooke, J.L. Tallon, R.G. Buckley, G. Todd, S.S. Kalsi, A. Szczepanowski, A. Sidi-Yekhlef, G. Snitchler, H. Picard, R.E. Schwall, B. Mackinnon and R. Neale</i>	
Development of High- T_c Superconducting Magnet Using Ag-Sheathed Bi2223 Tapes <i>T. Kato, K. Ohkura, M. Ueyama, K. Ohmatsu, K. Hayashi and K. Sato</i>	
Persistent Current Operation of High- T_c Superconducting Coils <i>D.T. Ryan, H. Jones, C. G. Morgan and C.R.M. Grovenor</i>	
Unified Materials Equation and Flux Motion in HTSC Magnets <i>D.L. Yin, C.Y. Li, W.P. Bai, G. Li and K.X. Chen</i>	
Normal-Zone Propagation in Bi-2212 Solenoidal Coil at 4.2 K <i>T. Hase, O. Ozaki, K. Shibutani, S. Hayashi, M. Shimada, Y. Kawate, K. Takabatake, T. Kiyoshi, M. Yuyaya, K. Inoue and H. Wada</i>	
Transport Properties under the Large Stress State for a $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_8$ Tape Coil <i>K. Watanabe, S. Awaji, M. Motokawa, K. Fukushima and M. Okada</i>	
Cryocooler-Cooled Bi-2223 Superconducting Magnet Carrying Persistent Current <i>K. Tasaki, K. Yamamoto, K. Koyanagi, H. Onoda, Y. Yamada and O. Horigami</i>	
Development of HTS Coils and Magnets of Multifilament Bi-2223/Ag Tapes <i>Z.Z. Duan, X.K. Teng, P.X. Zhang, S.H. Wu, H.L. Zhen, S.G. Xiong, X.Z. Wu and L. Zhou</i>	
Fabrication and Properties of Test Magnet of Bi-2223/Ag Tapes <i>H. Deng, R. Zeng, P.W. Hua, Y.R. Zhou, X.K. Fu, W. Lin and G.S. Yuan</i>	

Studies on Magnetization and Magnetic Stability of HTS Permanent Magnet <i>M. Qiu, S. Han, L.Z. Lin, Y.S. Han, P. Ye, S.F. Chen and L. Xu</i>	824
Evaluation of Heat Generation in a Bulk High T_c Superconductor During Pulsed Field Magnetization <i>M. Tsuchimoto and K. Morikawa</i>	828
PART TWO	
Magnets for Different Applications, Research Magnets	
Future Steps in Developing HT $_c$ SC Bulk Material Levitation Technique for Transportation Systems <i>H. Weh</i>	833
Design, Fabrication and Testing of a 100 kA Superconducting Transformer for the SULTAN Test Facility <i>G. Pasztor, A. Anghel, B. Blau, A.M. Fuchs, B. Jakob and C. Marinucci</i>	839
The Test of Saddle Superconducting Magnet System <i>L.G. Yan, L.Z. Lin, Z.K. Wang, B.Z. Zhao, Z.Y. Gao, C.L. Xue, H.D. Li, X.S. Li and F.Y. Zhang</i>	843
Design and Testing of 10kA Current Leads for Fusion Magnets Using High Temperature Superconductors <i>T. Ando, T. Isono, K. Hamada, H. Tsuji, Y. Yasukawa, H. Yamada, M. Konno, K. Sakaki, T. Kato, K. Hayashi, K. Sato and S. Shimamoto</i>	847
Status of Experimental Studies of a Helical MHD Thruster with a 5-Tesla Superconducting Magnet in China <i>C.W. Sha, K. Zhou, Y. Peng, A.H. Yang and X.P. Guo</i>	851
Peltier Current Lead Experiments with a Thermoelectric Semiconductor near 77 K <i>S. Yamaguchi, H. Nakamura, K. Ikeda, T. Sakurai, I. Yoshida, S. Tanuma, S. Tobise and K. Koumoto</i>	855
Experiment Studies for a Linear-Type MHD Seawater Thruster with a Dipole Superconducting Magnet in a Test Facility <i>Y. Peng, C.W. Sha, K. Zhou, A.H. Yang and X.P. Guo</i>	859
Electromagnetic Actuators and Seismic Simulator <i>E.A. Chaniotakis, A. Radovinsky, J. Minervini, S. Fairfax, P. Marston, P. Titus, E. Kausel, C. Doll and N. Toksoz</i>	863
Effects of Passive Shimming on MRI Superconducting and Permanent Magnets <i>X.H. Jiang, S. Han and Z.X. Feng</i>	867
Asymmetric MRI-Magnets with Ferromagnetic Loops <i>W.H.-G. Mueller</i>	870
21.7T Superconducting Magnet Using (Nb,Ti) $_3$ Sn Conductor with 14%-Sn Bronze <i>R. Hirose, T. Kamikado, O. Ozaki, M. Yoshikawa, T. Hase, M. Simada, Y. Kawate, K. Takabatake, M. Kosuge, T. Kiyoshi, K. Inoue and H. Wada</i>	874
High-Field Performance of BSCCO Coils with an Outer Diameter of 130 mm <i>T. Kiyoshi, H. Kitaguchi, H. Kumakura, K. Inoue, H. Wada, T. Hase, S. Hayashi, K. Ohkura, K. Sato, K. Tanaka and M. Okada</i>	878

Design and Manufacturing of a 500 MHz /89 mm Superconducting Magnet for NMR Spectroscopy <i>G. Masullo, M. Ariante, V. Cavaliere, M. Mariani, A. Matrone and R. Quarantiello</i>	882	Comparison of Direct Driven Axial and Radial Flux Permanent Magnet Generators for Wind Power Applications <i>L. Soederlund and R. Perala</i>	940
Development of Superconducting Joints for NMR Superconducting Magnet Application <i>G. Liang, C.R. Meitzler, T. Binford, L. Crow, J. Zeigler, T. Mann and J. Hunter</i>	885	The Optimized Engineering Designing Method for NdFeB Magnetic Circuit <i>H.X. Zhou, X.K. Wang and Y.B. Xia</i>	944
A Prototype 1.5 Tesla Superconducting MRI Magnet for Head Scanning <i>H.B. Jin, S.S. Oh, J.W. Cho, Y.K. Kwon, E.Y. Lee, D.W. Ha, H.J. Kim, K.S. Ryu, B.H. Oh and K.Ryu</i>	889	Study on the Inverse Electromagnetic Problem and Optimization of a Permanent Magnet Appliance <i>Y. Li, R.Y. Tang, F. Lin, S.H. Wang and L.J. Tian</i>	948
Quench Behavior of Multi-Sectional Superconducting Magnet in Superfluid Helium <i>O. Ozaki, R. Hirose, M. Yoshikawa, T. Hase, M. Shimada, Y. Kawate, K. Takabatake, T. Kiyoshi, M. Kosuge, K. Inoue and H. Wada</i>	892	Open Interventional Superconducting Magnet Technology <i>T.J. Havens and R.S. Smith</i>	952
Development of Open Simulated Permanent Magnet for MRI Using NdFeB <i>M. Pu, F.A. Zhen, X.J. Luo and H.X. Li</i>	896		
Head Bird-Cage Resonator for fMRI at 4T <i>D. Zu, L. Yu, W. Wang and S. Bao</i>	899	Materials for Magnets	
The Design Study on 4 Tesla fMRI Superconducting Magnet <i>D.L. Zu, H. Guo, S.L. Bao and W.D. Wang,</i>	903	Mechanical Properties of Bi-2223/Ag Composite Tapes for Large Scale Applications <i>Z. Han, P. Skov-Hansen and P. Vase</i>	956
The Redistribution of Trapped Fluxes and Energy Dissipation for HTS Permanent Magnet under AC-Field Disturbances <i>M. Qiu, S. Han, L.Z. Lin and P. Ye</i>	907	Improved Flux Pinning in Bi ₂ Sr ₂ CaCu ₂ O _x Powders and Powder-in-Tube Tapes via BaO ₂ and MgO Additions <i>J. Schwartz, U.P. Trociewitz, W. Wei, P.V.P.S.S. Sastry, B.T. Boutemy and P.R. Sahn</i>	960
Superconducting Magnet for Non-Neutral Plasma Research <i>A.V. Dudarev, V.E. Keilin, N.Ph. Kopeikin, I.O. Shugaev, A.V. Stepanenko, V.V. Stepanov, J. Fajans and D. Durkin</i>	911	Current-Voltage Curves and Distribution of Critical Current Density in Bi-2223 Superconducting Tape Wire <i>T. Matsushita, M. Tagomori, Y. Nakayama, A. Yamasaki, M. Kiuchi and K.I. Sato</i>	966
Design, Fabrication and Testing of a Superconducting Magnet System with 50 Degree Tilt Magnet for an Electron Cooling Experiment <i>K.P. Hwang and P. Finkel</i>	914	Deformation Mechanism Study of Hot Pressing of Ag-Clad Bi-2223 Superconducting Tapes <i>Y.W. Ma and Z.T. Wang</i>	970
A Superconducting Magnet for Microwave Oscillator <i>F.T. Wang, J.L. Chen, Z.Y. Chen and S. Wang</i>	918	Improving the Current Imbalance in Superconducting Cables <i>S. Yamaguchi, H. Chikaraishi, O. Motojima, A. Ninomiya and R. Shimada</i>	973
The Application of a Magnetic Field in Semiconductor Silicon Single Crystal Growth <i>Y.X. Li, G.Z. Xu, F.G. Liu, Q.X. Yang, Y.S. Xu, W.L. Yan, C.C. Tang, J. Du and G.H. Wu</i>	921	Development of Nb ₃ Al Superconducting Wires Fabricated by Rapid-Quenching and Transforming Process <i>K. Nakagawa, K. Fukuda, G. Iwaki, H. Moriai, Y. Iijima, T. Takeuchi, T. Kiyoshi, K. Itoh, K. Inoue, H. Wada and N. Kobayashi</i>	977
R & D of Superconducting Flux Pump for Superconducting Magnet <i>L.G. Yan, J. Qin, C.L. Yi, K.L. Luo, Y.J. Wang, G.Z. Gao and Z.K. Wang</i>	923	Highly Time-Resolved Observation of Local Disturbance in Liquid Helium Induced by Quench of Superconducting Wires <i>N. Hayakawa, Y. Taniguchi, S. Chigusa and H. Okubo</i>	981
Study of Current Transfer in Superconducting Joints <i>S. Mizumaki and A. Yamamoto</i>	927	The Strain Dependence of ITER Related Nb ₃ Sn Superconductors in the Temperature Range from 4 to 10 Kelvin <i>B. ten Haken, A. Godeke and H.H.J. ten Kate</i>	985
Magnetic Shielding Effects of HTS Thick-Film Cylinder by Using Three-Layered Permalloy and Three-Layered Soft-Iron Cylinders <i>K. Mori, F. Pavese, M. Itoh, M. Vanolo and T. Minemoto</i>	931	Mechanical Properties of 110 mm Thick Hot Rolled Plates of JJ1 and JK2 for ITER TF Coil <i>K. Ishio, H. Nakajima, T. Kawasaki, S. Uehara, H. Tsuji, F. Wong and S. Shimamoto</i>	989
Capacitance-Discharging Welding between Multifilamentary Nb ₃ Sn and NbTi Wires <i>S. Han, L.Z. Lin, Y.B. Lin, Q.L. Luo, J.D. Li, N.H. Song, P. Ye, L. Xu, J.P. Li and N. Huang</i>	935	Characterization of a High Critical Current, Low Cabling Degradation NbSn Conductor for Accelerator Magnets <i>G. Ambrosio, M. Durante, D. Pedrini, M. Pojer, L. Rossi, R. Carre, S. Conti and S. Rossi</i>	993
The Fabrication and Assembly for a New Type of AMS Body <i>D.M. Gao, Y.H. Xue, S.F. Jiang and X.M. Gu</i>	937	Effects of Artificial Pin Materials and Volume Fractions on the Flux Pinning in Ultrafine Multifilamentary NbTi Superconductors <i>O. Miura, T. Okubo, Y. Zhu, D. Ito and S. Endo</i>	997

Fine Filament NbTi Superconductor Production <i>A.D. Nikulin, G.P. Vedernikov, L.V. Potanina, E.I. Plashkin, E.N. Nikulenkov, I.N. Gubkin, V.Yu. Korpusov, M.M. Potanenko and S.I. Novikov</i>	1001	Multifilamentary Conductors Based on Bi-2212 HT _c -Compound <i>A.D. Nikulin, A.K. Shikov, I.I. Akimov, N.I. Kozlenkova, D.N. Rakov and F.V. Popov,</i>	1064
AC Transport Current Characteristics of NbTi AC Wire with Stabilization Copper in Periphery of Filamentary Region <i>S. Fukui, O. Tsukamoto, K. Yamagishi, T. Takahashi, K. Miyashita and K. Fukuda</i>	1004	Flux Flow State in Bi ₂ Sr ₂ CaCu ₂ O _{8+δ} Films on Ag Tapes <i>G. Nishijima, T. Ogura, T. Okamura, S. Kabashima, E.S. Yoneda, S. Nomura and H. Nakagome</i>	1067
Current Distribution and Stability of Multistrand Superconducting Cables for AC Applications <i>V.S. Vysotsky, K. Funaki, K. Kajikawa, Yu. A. Ilyin, M. Nakamura, M. Iwakuma, M. Takeo, H. Tomiya and T. Kumano</i>	1008	Characterization of Ag/Bi-2223 Tapes in Wide Range of Temperature and Magnetic Field <i>H. Okamoto, F. Irie, T. Kiss, T. Nakamura and T. Kanazawa</i>	1071
Superconducting Wires with CuNi and CuMn Matrices for AC Operation <i>G.P. Vedernikov, A.D. Nikulin, L.V. Potanina, E.V. Nikulenkov, E.I. Plashkin, I.N. Gubkin, V.Yu. Korpusov, S.I. Novikov and M.S. Novikov</i>	1012	Comparative Study of J _c -H Characteristics for Composite Bi-2223 Tape Conductors of Different Construction <i>N.I. Kozlenkova, P.A. Kuznetsov, A.K. Shikov, I.I. Akimov and D.N. Rakov.</i>	1075
Development of React and Wind Coils Using In-Situ Nb ₃ Sn Wires for A.C. Application <i>H. Fuij, K. Goto, N. Sadakata, T. Saito, O. Kohno and K. Takeda</i>	1016	Preparation of Multifilamentary Bi(2223)/Ag Tapes by PIT Method <i>W. Lin, P.W. Hua, X.K. Fu, Y.R. Zhou, H. Deng, Q. Zhou and G.S. Yuan</i>	1078
Nb ₃ Sn Superconducting Wires for the ITER Magnetic System, Produced from 300 mm dia Composite Billets <i>A.K. Shikov, A.E. Vorobieva, A.G. Silaev, A.D. Nikulin, I.I. Davidov, L.I. Vojdaev and K.A. Mareev</i>	1020	Fabrication and Characterization of Bi(2223) Current Lead <i>X.K. Fu, Y.R. Zhou, W. Lin, P.W. Hua, H. Deng, G.S. Yuan, N.H. Song, P. Ye and L.Z. Lin</i>	1081
Strand-Strand Contact Resistances of Nb ₃ Sn Wires Clad with Various Materials <i>M. Takayasu, J.V. Minervini, D. Yu, T. Wong and J. Wong</i>	1024	New Method for Manufacturing Ag-Sheathed Bi-2223 Superconducting Tapes with Uniform Microstructure <i>Y.W. Ma, X.J. Wang and Z.T. Wang</i>	1083
The Fabrication of Nb ₃ Sn Wires by Internal Tin Method <i>D.W. Ha, S.S. Oh, H.S. Ha, S.C. Kim, K.S. Ryu and I.Y. Han</i>	1028	The Effect of Pb-Dopping and Different Process on AC Loss of Bi2223/Ag Tapes <i>J.X. Wang, S.Z. Yang, Y.F. He, L.F. Hu, Z.Z. Duan, P.X. Zhang and L. Zhou</i>	1086
Properties of Fiber-Reinforced Superconductors Adopting Tantalum Fibers <i>K. Arai, M. Umeda, K. Agatsuma, H. Tateishi and T. Hoshino</i>	1032	Critical Current and Transport AC Losses in Multifilamentary Bi2223/Ag Tapes at Power Frequency <i>Y.S. Wang, L.Z. Lin, D. Hui, Q.Y. Hu, Z. Rong and S.X. Dou</i>	1090
Performance of React and Wind Test Coil Applying Cu-Nb Reinforced Nb ₃ Sn Composite Wires <i>S. Iwasaki, H. Fuji, K. Goto, N. Sadakata, T. Saito, O. Kohno, S. Awaji and K. Watanabe</i>	1036	Critical Currents and Processing of Bi-2223/Ag Multi-filamentary Tapes <i>P.X. Zhang, L. Zhou, C.S. Li, Z.Z. Duan, H.L. Zheng, A.K. Wang, P. Ji, J.R. Wang and X.Z. Wu</i>	1094
Nb ₃ (Al,Ge) Multifilamentary Conductor Fabricated by Continuous Rapid-Heating/Quenching Process <i>Y. Iijima, K. Inoue, M. Kosuge and T. Takeuchi</i>	1040	High Current Transport Characteristics of a Melt-Textured YBCO Conductor up to 20 kA <i>K. Maehata, M. Mizokami, K. Ishibashi, M. Takeo, T. Mito, A. Iwamoto, S. Yamada, S. Satoh, O. Motojima, N. Hirano, T. Shintomi, K. Kimura and M. Sawamura</i>	1098
Aluminium Stabilised Superconductor for the BELLE Detector at KEK-B <i>I.L. Horvath, Y. Makida, E. Suzuki, H. Eriksson, J. Seppala, J. Teuho, K. Scott, H.-P. Marti, D. Grman, R. Huwiler, J. Neuenschwander and B. Seeber</i>	1044	Study on AC Losses of YBa ₂ Cu _{3-x} Sn _x O _y Superconductor <i>Y.F. He, S.Z. Yang, C.W. Yang, J.X. Wang, Y. Feng, P.X. Zhang and L. Zhou</i>	1102
Primary Test of Superconducting Strains and Triples in Pulse Fields for HT-7U Project <i>Y.F. Bi, Z.M.Chen, Y.N. Pan, J.D.Li, Y. Wu, Y.H.Zhu, B.Z. Li and W.Y. Wu</i>	1048	Pulsed Laser Deposited YBCO Superconducting Thin Films on Ni-Based Tapes <i>Q.L. Wang, D.W. Ha, S.S. Oh and J.W. Cho</i>	1105
Transport Characteristics in High T _c Superconductors <i>T. Kiss, T. Nakamura, N. Mishiro, K. Hasegawa, M. Inoue, M. Takeo, F. Irie and K. Yamafuji</i>	1052	Influence of Ag/SC Ratio on the Stability in Ag-Sheathed HTSC Tape <i>Q.L. Wang, S.S. Oh and K.S. Ryu</i>	1108
The Stability Characteristics of Bi-based High Temperature Superconducting Coil <i>V.S. Vysotsky, M. Takeo, T. Kiss, Yu.Ilyin, M. Matsuo, T. Nakamura, H. Saho, K. Watanabe, S. Awaji and M. Okada</i>	1056	Circulating Current Characteristics in Oxide Cylindrical Bulk Superconductors under Influence of Flux Creep <i>T. Yasunaga and D. Ito</i>	1112
Relation between Critical Current Densities and Normal-State Resistivities in (Bi, Pb)-Sr-Ca-Cu-O Superconductor Tapes <i>J. Chikaba</i>	1060	Enhancement of Stability of Cable Superconductor by Normal Metal Elements Periodically Placed to Short Cable Strands <i>O. Tsukamoto, T. Sasaki, K. Yamagishi, Yue Li, S. Fukui, M. Yamaguchi and M. Ono</i>	1116
		Effect of Cu-Sheath on Transient Stability of A.C. Multi-Strand Superconducting Cables <i>A. Ishiyama, M. Sasaki, K. Ohgitani, S.B. Kim, M. Tsuda, H. Yumura, K. Ohmatsu and K. Sato</i>	1120
		Noncontact Measurement of Propagation Velocity of Normal Zone after Quench in Multi-Strand Superconducting Cable with Capacitance Divider <i>H. Shimizu, K. Taketa, Y. Yokomizu, T. Matsumura and Y.J. Tang</i>	1124

Various Types of AC Losses in Ag-Sheathed Bi-2223 Tapes Measured by a Universal Method with a Double-Layer Non-Inductive Sample Coil <i>K. Kajikawa, M. Iwakuma, K. Funaki, M. Nakamura, H. Shiraishi, D. Sakamoto, T. Matsushita, Y. Hikichi, T. Hasegawa and T. Kumano</i>	1128	Mechanical and Thermal Properties of Structural Materials and Coil of UNK Superconducting Magnet <i>S.S. Kozub and V.V. Zubko</i>	1186
AC Loss of AC Superconducting Cables Due to Longitudinal and Azimuthal Magnetic Field Component <i>S. Fukui, O. Tsukamoto, N. Amemiya and N. Yoshida</i>	1132	Investigation on the Mechanical Properties and Electroconductivity of <<in situ>> Cu-Nb Microcomposites Doped by Third Elements <i>V. Pantsyrnyi, A. Shikov, A. Nikulin, A. Vorobieva, A. Silaev, N. Kozlenkova, I. Potapenko, N. Beliaikov, V. Vdovin, M. Polikarpova, V. Zinoviev and V. Drobyshev</i>	1190
AC Loss Measurement of Bi System Multilayer Tape Superconductor for Power Transmission Cable <i>T. Hoshino, I. Muta, N. Higuchi and N. Natori</i>	1136	A New High Strength Conductor with High Conductivity for High Magnetic Fields <i>T. Asano, T. Kiyoshi, K. Inoue, H. Wada, K. Nakagawa and G. Iwaki</i>	1194
Theoretical Estimation of Twist Pitch Dependence of AC Losses in High-T _c Multifilamentary Superconducting Tapes <i>N. Banno and N. Amemiya</i>	1140	Winding Conductors for Large Scaled Pulsed Magnets on the Base of Cu-Nb and Cu/SS Systems <i>V. Pantsyrnyi, A. Shikov, A. Nikulin, A. Vorobieva, A. Silaev, I. Potapenko, N. Beliaikov, V. Vdovin, G. Vedernikov, I. Gubkin, N. Salunin, N. Kozlenkova and M. Polikarpova</i>	1198
Frequency Dependence of AC Losses in Parallel Conductors Composed of Bi2223 Superconducting Wires <i>M. Iwakuma, T. Sadohara, H. Tanaka, K. Kajikawa, T. Matsushita, K. Funaki, M. Konno, S. Nose, M. Ueyama, K. Hayashi and K. Sato</i>	1144	Research of Stress Effects for the High T _c Oxide Superconductors <i>B.Z. Tang, M. Huang, Y.B. Tang, B. Su, X.H. He and H.X. Li</i>	1202
Frequency Dependence of AC Loss in Nb-Ti Superconducting Wire with Cu-Si Alloy Matrix <i>H. Kasahara, S. A. Kita, S. Torii, S. Kawabata, F. Sumiyoshi and M. Sugimoto</i>	1148	Thermal-Neutron-Irradiation Induced Flux Pinning in MTG YBa ₂ Cu ₃ O _y with Doping B Element <i>Y.L. Jiao, L. Xiao, H.T. Ren, R.K. Wang, M.H. Zeng, J.Z. Li, Y.T. Liu and H.W. Xiao</i>	1206
Jacketing of 860 m ITER Dummy CICC on Russian Jacketing Line <i>V. Sytnikov, A. Taran, V. Mitrokhin, A. Rychagov, I. Chensky, U. Stakhanov, V. Pronjakin and B. Rebechenkov</i>	1152	First Results of Strain Effects on Critical Current of Incoloy Jacketed Nb ₃ Sn CICC's <i>W. Specking, J.L. Duchateau and P. Decool</i>	1210
Improvement of Electrical Insulation Performance of Superconducting Coil under Quench-Induced Thermal Disturbance in Liquid Helium <i>S. Chigusa, Y. Taniguchi, N. Hayakawa and H. Okubo</i>	1155	AC Transport Current Loss of High Temperature Superconducting Tapes in Single Layer Arrangements <i>Y. Kito, O. Tsukamoto and S. Fukui</i>	1214
AC Surface Spark Voltage of Pipes Composed with High Strength Polyethylene Fiber Reinforced Plastics in Coolant <i>T. Nitta, M. Chiba, T. Kashima and T. Takao</i>	1159	Crack Spacing in a-Axis Oriented YBa ₂ Cu ₃ O ₇₋₈ Films Prepared by Liquid Phase Epitaxy <i>T. Aichele, P. Görnert and C. Dubs</i>	1218
Avoidance of Stress Accelerated Grain Boundary Oxidation (SAGBO) in Incoloy 908 Used as a Jacket Material for Nb ₃ Sn Conductors <i>N. Mitchell, F. Wong, T. Kato, H. Nakajima and R. Randall</i>	1163	Development of the Ultra-High Strength, High Conductivity Cu-Ag Alloy <i>Y. Sakai, T. Asano, T. Kiyoshi, K. Inoue and H. Wada</i>	1222
High Temperature Insulation for Wind and React HTS Coil <i>I.H. Mutlu and Y.S. Hascicek</i>	1167	Cryogenics for Magnets	
Manufacture of Aluminium Stabilised and Reinforced Superconductors by Electron Beam Welding Technique <i>I.L. Horvath, F. Wittgenstein, F. Bertinelli, A. Desirelli, S. Sgobba, T. Tardy, D. Fritz and J. Neuenschwander</i>	1170	Development of Superfluid-Cooled Cryostat for 1 GHz NMR Spectrometer <i>A. Sato, T. Miki, F. Matsumoto, H. Nagai, H. Wada, S. Itoh and Y. Kawate</i>	1226
Transverse Thermal Conductivity in a Cable-in-Conduit Conductor <i>K. Takahata and T. Mito</i>	1174	The Cryogenic System for the Superconducting Solenoid Magnet of the CMS Experiment <i>D. Delikaris, J.-P. Dauvergne, G. Passardi, J.-C. Lottin, J.-P. Lottin and Ch. Lyraud</i>	1230
Frictional Characteristics on Contacting Surfaces between AC Superconducting Wires and Alumina Dyneema Fiber Reinforced Plastics <i>T. Takao, H. Konda, H. Akama, T. Kashima and A. Yamanaka</i>	1178	Measurement of Cryogenic Characteristics of a Pressurized Superfluid Helium Cryostat <i>T. Haruyama, N. Kimura, H. Ohhata, M. Iida, T. Nakamoto, T. Shintomi, K. Tanaka and A. Yamamoto</i>	1234
Influence of Mechanical Properties of Coil Bobbins on Stability of Superconducting Coils <i>T. Takao, K. Watanabe, T. Moriya, T. Kubosaka, T. Kashima, A. Yamanaka and S. Fukui</i>	1182	Improved Heat Transfer for Rutherford-Type Insulated Cables in Pressurized He II <i>N. Kimura, V. Kovachev, A. Yamamoto, T. Shintomi, T. Nakamoto, A. Terashima, K. Tanaka and T. Haruyama</i>	1238
		Development of the Rotating He-Recondensing System for the Superconducting Generator <i>S. Jeong and C. Lee</i>	1242
		Heat Transfer from Copper Wall to He II Channel <i>S. Hamaguchi, T. Okada, T. Okamura and S. Kabashima</i>	1246

Heat Transfer in He II Flow Loop Driven by Fountain Effect Pump
T. Okamura, S. Matsuo and S. Kabashima

Overloaded Current Leads
A.V. Gavrilin and V.E. Keilin

Numerical Analysis Magnets, Calculation, Design and Measurement

Analysis on the Characteristics of the Magnetic Field System for High Speed Machines by Using Halbach Array
S.M. Jang, J.H. Seo and S.K. Choi

Integration of the Magnetic Components of Circular Thick Coils and Disk Coils
A. Hervé

The Computations of Magnetic Field Force and Torque in the Structure Made by Permanent Magnet Bars
Y.Y. Yao, D.X. Xie, B.D. Bai and P.C. Xia

Strain Measurement in Fluctuating Magnetic Field and during Cold Thermal Cycles
A. Nishimura, J. Yamamoto, Y. Yamaura and H. Fukada
B.

Reference Dipole Field Measurement for CEBAF Beam Energy Determination
F. Kircher, J. Fabre, F. Gougnaud, M. Humeau, R. Leboeuf, D. Marchand, M. Maurier, S. Regnaud, J.C. Sellier, P. Vernin and C. Veyssiere

Experimental Verification of 'Supercurrents' Induced in Superconducting Cables Exposed to AC-Fields
L. Krempasky, R. Bussjager and C. Schmidt

Field Mapping of Large Aperture Superconducting Quadrupoles
P. Vernin, J. Le Bars, H. Fonvieille, G. Quéméner and J. Billan

Analysis of the AC Losses in the US Preprototype ITER Joint
N.N. Martovetsky and P.C. Michael

Contact Resistance and Coupling Loss in Cable-in-Conduit of Cr Plated Nb₃Sn Strands
P. Bruzzone, A. Nijhuis and H.H.J. ten Kate

Dependence of CICC's Stability on Coolant Flow Rate
K. Azuma, N. Koizumi, K. Macfall, T. Ando, Y. Takahashi and H. Tsuji

Electrical Characterization of Aluminum Stabilized Superconducting Cables
P. Fabbriatore, R. Musenich, C. Priano and E. Sirola

A Proposal of Quench Detection System for Long Superconducting Bus Line of LHD System
Y. Uriu, A. Ninomiya, Y. Kanda, T. Ishigohka and T. Mito

Magnet Estimation and Rapid Optimization(MaEstRO)
D. Swoboda

Analytical Modeling of the Friction Effects at the ITER TF/CS Interface
V. Naumov, V. Palmov, A. Panin, N. Mitchell and Y. Krivchenkov,

1250	Stress Variation in the Winding Pack of an ITER Central Solenoid Configuration <i>Y. Krivchenkov, J. Stoner, A.I. Borovkov, K. Grodinsky, L. Nikulina and A. Panin</i>	1319
1254	Computer Simulation of Magnet Quench Induced by Wire Motion <i>S. Nishijima, T. Kushida, S. Ueno and T. Okada</i>	1323
	Dynamic Simulation of Wire in CICC <i>Y. Otani, S. Nishijima and T. Okada</i>	1327
	3D Analysis of Coupling Current Losses of Superconducting CIC Conductors <i>T. Kawashima, T. Yoshida, F. Sumiyoshi, S. Kawabata and T. Mito</i>	1331
1258	HARM-3D –a Code to Calculate Magnetic Characteristics of Superconducting Magnets <i>S.V. Purtov and L.M. Tkachenko</i>	1335
1262	Influence of Contact Characteristics between Strands on CIC Conductor Stability <i>K. Ryu, S.S. Oh, H.B. Jin and Y.A. Kwon</i>	1339
1271	Calculation of Self Field Losses with External Field in Superconducting Wire <i>J.K. Lee, S.Y. Hahn and G.S. Cha</i>	1343
1275	Analysis of Permanent Magnet Linear Synchronous Motor Considering Lateral Displacement by 3-D Equivalent Magnetic Circuit Network Method <i>I.S. Jung, J. Hur and D.S. Hyun</i>	1347
1279	Detent Force Calculation of PM Type LSM Using Equivalent Magnetizing Current <i>K.C. Lim, J.P. Hong and G.T. Kim</i>	1351
1283	Stochastic Finite Element Analysis of Force Variance due to Uncertain Parameter in Electromagnetic Systems <i>D.Y. Jeon, H.K. Jung, S.Y. Hahn, H.Han Park and K.D. Choi</i>	1354
1287	Characteristics Analysis for Permanent Magnet Assisted Synchronous Reluctance Motor by FEM <i>J.H. Lee, D.S. Hyun and J.C. Kim</i>	1358
1291	The Application of Tabu Algorithm to the Optimization of Automobile Permanent Magnet Starter Motor <i>X.H. Wang, Y. Li and R.Y. Tang</i>	1362
1295	The Effects of Commutation on the Air-Gap Magnetic Flux of Automobile Permanent Magnet Starter Motor <i>X.H. Wang, Y. Li and R.Y. Tang</i>	1365
1299	Calculation on the Transient Performance of a Permanent Magnet Synchronous Motor by Space-Time Finite Element Method <i>R.Y. Tang, F. Lin, Z.H. Guo and Y. Li</i>	1368
1303	Study on the Electromagnetic, Thermal and Force Fields in Transverse Flux Induction Heating for Electromagnetic Metallurgy <i>Z.M. Wang, W.H. Huang, W.L. Yan, T.G. Chen and D. Schulze</i>	1372
1307	Hysteresis Modeling Based on the Artificial Neural Network <i>B.D. Yu, L.Z. Zhang and Y.H. Yang</i>	1376
1311	A Numerical Calculation Model for Giant Magnetostrictive Devices <i>R.G. Yan and Q.X. Yang</i>	1380
1315	Calculation and Analysis of 3-D Magnetic Field in Magnetic Control Cathode Splash Target <i>Y. Li, F. Lin, R.Y. Tang, L.J. Tian and S.H. Wang</i>	1384

Geometry Optimization of a High Gradient Quadrupole Magnet <i>I.V. Bogdanov, V.I. Gridasov, K.P. Myznikov, P.A. Shcherbakov, V.V. Sytnik, L.M. Tkachenko and L.M. Vassiliev</i>
Removable Pole Magnet Core Design with Single Manufacturing Tolerance <i>J.D. Gracia and C. Rago</i>
A Code for Self-Consistently Calculating the Transient Energy Losses and Cooling of a 3-Dimensional Superconducting Winding Pack <i>P.W. Wang and J.H. Schultz</i>
Stabilities of Superconducting Split Pair Coils <i>T. Kamikado, R. Hirose, M. Shimada, T. Kiyoshi, K. Inoue and H. Wada</i>
Non-uniform Current Distribution in Multi-Stage Stranded Cables Wound into Superconducting Coils <i>K. Seo, M. Morita, M. Hasegawa and H. Yoshimura</i>
Relation between Field Homogeneity and Multipole Coefficients for Dipole Coils <i>T. Tominaka, H. Okuno, S. Fujishima, A. Goto and Y. Yano</i>
Stability Analysis in Cryogen-Free Superconducting Magnets during Current Excitation <i>M. Morita and H. Yoshimura</i>
An Optimal Design Method for Magnetic Shields of MRI Superconducting Magnets by Using Equivalent Magnetization Current Method <i>S. Noguchi and A. Ishiyama</i>
A Hybrid Finite Element-Boundary Element Method for Axisymmetric Magnetostatic Field Problems with Open Boundaries <i>H. Guo, Z.X. Feng and S. Han</i>
Numerical Stability Model for a HTS-Solenoid <i>J. Lehtonen, M. Lahtinen, R. Mikkonen and J. Paasi</i>
A Toroidal High T_c Superconducting Coil with $(\text{Bi,Pb})_2\text{Sr}_2\text{Ca}_2\text{Cu}_3\text{O}_{10+x}\text{Ag}$ -Sheath Wire <i>J.X. Jin, S.X. Dou, C. Granham, D. Sutanto, M. Apperley and T. Beales</i>
Bulk-Parameter Estimation on the Mean Temperature Rise of Superconducting Magnet during the Magnet Quenching Process <i>X.B. Lei and W.Q. Ge</i>
Investigation of the Transformer's Magnetization Properties on HT-7 Superconducting Tokamak <i>Y.B. Zhu, C. Zhang, J.K. Xie and Q.C. Zhao</i>
Study on the Local Irreversible Demagnetization Problem of PM in Electric Machines <i>R.Y. Tang, G.R. Xu and Y.L. Xu</i>
A Precision Harmonic Measurement System for SLAC B-Factory LER Quadrupoles <i>R. Hou, F.L. Ren, Y.D. Hao, Y. Han, Q.L. Peng, J. Sun, M.T. Wang, B.G. Yin, G.L. Ni, L. Li, G.Y. Zhao and Y.G. Li</i>
MRI Siting for Hospitals in China Based on PLA 301 Hospital Site Improvement <i>W.X. Wang</i>

1388	Magnetic Measurements of a Superferric Quadrupole for the TESLA Test Facility with a Stretched Wire and AC Current <i>H.D. Bruck, J. Fischer, P.D. Gall, H. Morales-Zimmermann, W. Shi and M. Stolper</i>	1446
1392	Fast Online Measurements of Magnetic Multipoles during Ramping of the Magnetic Field <i>H.D. Brueck, J. Fischer, P.D. Gall, H. Morales-Zimmermann, W. Shi and M. Stolper</i>	1450
1394	Training Tests on Single Superconducting Coils of Sextupolar Correctors for LHC <i>M. Bajkó, A. Ijspeert, J.C. Perez, L. García-Tabarés, J. Calero and F. Toral</i>	1454
1398	Design and Use of Capacitive Force Transducers for Superconducting Magnet Models for the LHC. <i>N. Siegel, D. Tommasini and I. Vanenkov</i>	1458
1402	RRR-Measurements of High Purity Aluminum under Static and Dynamic Mechanical Stress <i>B. Seeber, L. Erbüke, R. Flükiger and I.L. Horvath</i>	1462
1406	Continuous Bond Quality Control of Aluminium Stabilised Superconductors <i>J. Neuenschwander, Th. Lüthi, I.L. Horvath and V. Pasquer</i>	1466
1410	A Facility for Measuring Critical Current on Cables up to 30,000 A at 8 T <i>G. Volpini, M.I. Durante, A. Paccalini, G. Rivoltella and L. Rossi</i>	1469
1414	Vibrating Sample Magnetometer for 30 T Hybrid Magnet <i>S. Awaji, K. Watanabe and M. Motokawa</i>	1473
1418	Applicability of Ice Impregnation to Superconducting Magnets <i>K. Seo, K. Naka, M. Morita, H. Yoshimura, S. Nishijima, S. Ueno and T. Okada</i>	1477
1422	Coupling Current Losses of Superconducting Cable Conductors for AC Use <i>S. Kawabata, F. Sumiyoshi, M. Miyata, M. Tsuji and N. Yoshida</i>	1481
1426	Stiffness Improvement of a Superconducting Bearing by Adjusting Base Position <i>M. Okano and N. Tamada</i>	1485
1430	The Investigation of Magnetic Field Microsensor Radiation Hardness <i>I. Bolshakova, T. Moskovets, N. Zamyatin, V. Makoveev and M. Bolshakov</i>	1489
1433	Measurement of Frictional Disturbance Energy by Calorimetric and Dynamic Methods <i>T. Takao, K. Watanabe, T. Kubosaka and A. Nishimura</i>	1492
1437	Non-Destructive Inspection of Ag-Sheathed Bi-2223 Superconductor Tape Using Ultrasonic Wave at Room Temperature <i>Y. Mori, T. Hagiwara, A. Ninomiya, T. Ishigohka, K. Hayashi and Y. Iwasa</i>	1496
1441	Superconducting Joint between the Superconducting Wires and Evaluation of its Resistance <i>S.S. Oh, H.M. Jang, H.S. Ha, D.W. Ha, H.B. Jin, K.S. Ryu, Y.M. Dai and W.S. Nah</i>	1500
1444	The Thrust Transducer for Linear Motor Testing <i>Y.T. Park and S.M. Jang</i>	1504
	Magnetic Field Measurements for 6T Superconducting Wiggler <i>Yu.A. Ilyin, A.V. Dudarev, V.V. Shcherbakov, N.Q. Liu, H.P. Yan and J.M. Chen</i>	1508
	The New Low Frequency Resonance Acoustic Emission Method of Quench Detection <i>A. Lancetov, M. Zhelamskij, A. Anghel, S. Pourrahimi and Y. Takahashi</i>	1512

1.55 T Permanent Magnetic Wiggler Measurement for the BSRF <i>J.C. Li, Y.D. Hao, F.L. Ren, L. Li, M.T. Wang, R. Hou, J. Zhang, B.G. Yin, G.Y. Zhao, J. Sun, J.B. Pang, L.Q. Zhen, J.Q. Guo, G.M. Ma, Q.L. Peng and Y. Han</i>	1516
High Field Vibrating Sample Magnetometer <i>J.C. Wang, J.L. Chen, W.F. Yuan, F.T. Wang and S. Wang</i>	1519
A New Application of Nonlinearity of Magnetic Permeability <i>J.Z. Xue and D.L. Yang</i>	1522
Multiple-Numerical Integration of the Paris Equation vs. Application of Miner's Rule in Multi-Stage Fatigue of the ITER TF Case <i>J. Feng and P.H. Titus</i>	1526
Fatigue Evaluation of the ITER Toroidal Field Coil Case <i>P.H. Titus and J. Feng</i>	1530
3-Dimensional Inductance Calculation for Superconducting Generator <i>W.S. Kim, S.Y. Hahn, K.D. Choi and G.S. Cha</i>	1534
Computation of a Linear Eddy Current Braking System Using the Finite Element Method <i>S.J. Lee, M. Hecquet, P. Brochet, P. Delsalle and K.D. Choi</i>	1538
A Power Converter with a Micro-SMES Unit for Critical Loads <i>D. Hui, L.Z. Lin and Y.J. Yu</i>	1542
Author List	1547

SPONSORS

- The Chinese Academy of Sciences
- The National Natural Science Foundation of China
- The State Commission of Science and Technology
- The China Electrotechnical Society
- The Chinese Society for Electrical Engineering
- The International Institute of Refrigeration

CO-SPONSORS

- Institute of Plasma Physics, CAS
- Institute of High Energy Physics, CAS
- Institute of Metal Research, CAS
- Cryogenic Laboratory, CAS
- China Kejian Corp. Ltd., CAS
- General Research Institute for Non-Ferrous Metals
- Southwestern Institute of Physics
- Shenyang Polytechnic University
- Northwest Institute for Non-Ferrous Metal Research
- Wuhan Marine Electric Propulsion Research Institute
- Yichang Testing Technique Research Institute
- Beijing Institute of Environment Feature
- San Huan Incorporation, CAS

COMMITTEE MEMBERS

INTERNATIONAL ORGANIZING COMMITTEE

- L.G. Yan, Chairman (China)
- E. Baynham (UK)
- V.A. Glukhikh (Russia)
- F. Kircher (France)
- H.J. Schneider - Muntau (USA)
- N. Sacchetti (Italy)
- H. ten Kate (Netherlands)
- J.T. Eriksson (Finland)
- I. Hlasnik (Slovakia)
- P. Komarek (Germany)
- P. Reeve (Canada)
- S. Shimamoto (Japan)
- G. Vecsey (Switzerland)