

## Contents

### INVITED PAPERS

Internal Transport Barrier Physics for Steady State Operation in Tokamaks .....	WAKATANI Masahiro, ..... FUKUDA Takeshi, CONNOR Jack W., GARBET Xavier, GORMEZANO Claude, MUKHOVATOV Vladimir	3
Review of D-T Experiments Relevant to Burning Plasma Issues .....	HAWRYLUK, R.J.	12
Recent Development of LHD Experiment .....	MOTOJIMA Osamu, YAMADA Hiroshi, ASHIKAWA Naoko, EMOTO Masahiko, FUNABA Hisamichi, GOTO Motoshi, IDA Katsumi, IDEI Hiroshi, IKEDA Katsunori, INAGAKI Shigeru, INOUE Noriyuki, ISOBE Mitsutaka, KANEKO Osamu, KAWAHATA Kazuo, KHLOPENKOV Konstantin, KOBUCHI Takashi, KOMORI Akio, KOSTRIOUKOV Artem, KUBO Shin, KUMAZAWA Ryuhei, LIANG Yunfeng, MASUZAKI Suguru, MINAMI Takashi, MIYAZAWA Junichi, MORISAKI Tomohiro, MORITA Shigeru, MURAKAMI Sadayoshi, MUTO Sadatsugu, MUTO Takashi, NAGAYAMA Yoshio, NAKAMURA Yukio, NAKANISHI Hideya, NARIHARA Kazumichi, NARUSHIMA Yoshiro, NISHIMURA Kiyohiko, NODA Nobuaki, NOTAKE Takashi, OHDACHI Satoshi, OHYABU Nobuyoshi, OKA Yoshihide, OSAKABE Masaki, OZAKI Tetsuo, PETERSON Byron, SAGARA Akio, SAITO Kenji, SAKAKIBARA Satoru, SAKAMOTO Ryuichi, SASAO Mamiko, SATO Kuninori, SATO Motoyasu, SEKI Tetsuo, SHIMOZUMA Takashi, SHOJI Mamoru, SUZUKI Hajime, TAKEIRI Yasuhiko, TANAKA Kenji, TAMURA Naoki, TOI Kazuo, TOKUZAWA Tokihiko, TORII Yuki, TSUMORI Katsuyoshi, WATANABE Kiyomasa, WATANABE Tsuguhiko, YAMADA Ichihiko, YAMOMOTO Satoshi, YOKOYAMA Masayuki, YOSHIMURA Yasuo, WATARI Tetsuo, XU Yuhoung, CHIKARAISHI Hirotaka, HAMAGUCHI Shinji, HISHINUMA Yoshimitsu, IMAGAWA Shinsaku, IWAMOTO Akifumi, MAEKAWA Ryuji, MITO Toshiyuki, NISHIMURA Arata, TAMURA Hitoshi, YAMADA Shuichi, YANAGI Nagato, TAKAHATA Kazuya, ITOH Kimitaka, MATSUOKA Keisuke, OHKUBO Kunizo, SATOW Takashi, SUDO Shigeru, UDA Tatsuhiko, YAMAZAKI Kozo	22
High Performance Operational Limits of Tokamak and Helical Systems .....	YAMAZAKI Kozo, KIKUCHI Mitsuru	28
Theoretical Studies on Neoclassical Tearing Modes and Their Stabilization .....	YU Qingquan, GÜNTER Sibylle, LACKNER Karl	36
Resistive Wall Mode Control on the DIII-D Device .....	OKABAYASHI Michio, BIALEK James, CHANCE Morrell, CHU Ming, FREDRICKSON Eric, GAROFALO Andrea, HATCHER Ronald, JENSEN Torkil, JOHNSON Larry, LA HAYE Robert, LAZARUS Edward, MANICKAM Janardhan, NAVRATIL Gerald, SCOVILLE John Tim, STRAIT Edward, TURNBULL Alan, WALKER Michael, DIII-D Team	42
Impact of Energetic Ion Driven Global Modes on Toroidal Plasma Confinements .....	TOI Kazuo, YAMAMOTO Satoshi, TAKECHI Manabu, NAKAJIMA Noriyoshi, ISOBE Mitsutaka, TAKAGI Shoji, MATSUNAGA Go, OHDACHI Satoshi, SAKAKIBARA Satoru, OSAKABE Masaki, SASAO Mamiko, KOTANI Jyunichi, CHS and LHD Experimental Groups	50
MHD Stability of 3D Plasma Confinement Configurations with Finite Plasma Current .....	COOPER W. Anthony, ISAEV Maxim Yu., OKAMURA Shoichi, YAMAZAKI Kozo	57
Magnetized Target Fusion: Prospects for Low-cost Fusion Energy .....	SIEMON Richard E., TURCHI Peter J., BARNES Daniel C., DEGNAN James H., PARKS Paul, RYUTOV Dmitri D., THIO Francis Y.	63
Divertor Requirements and Performance in ITER .....	SUGIHARA Masayoshi	69
Physics Aspects of the Dynamic Ergodic Divertor (DED) .....	FINKEN Karl H., KOBAYASHI Masahiro, ABDULLAEV Sadrilla S., JAKUBOWSKI Marcin	77
ITER Confinement and Stability Modelling .....	POLEVOI Alexei R., MEDVEDEV Sergei Yu., MUKHOVATOV Vladimir S., KUKUSHKIN Andrei S., MURAKAMI Yoshiki, SHIMADA Michiya, IVANOV Andrei A.	82
Role of Radial Electric Field Shear at the Magnetic Island in the Transport of Plasmas .....	IDA K., OHYABU N., MORISAKI T., NAGAYAMA Y., INAGAKI S., YOKOYAMA M., ITOH K., YOSHIMURA M., LIANG Y., NARIHARA K., KOSTRIOUKOV A. Yu., PETERSON B.J., TANAKA K., TOKUZAWA T., KAWAHATA K., SUZUKI H., KOMORI A., LHD Experimental Group	88
Plasma Confinement in an RF-driven Tandem Mirror with a Strong Temperature Anisotropy .....	ICHIMURA Makoto, CHO Teruji, HIGAKI Hiroyuki, HIRATA Mafumi, HOJO Hitoshi, ISHII Kameo, ITAKURA Akiyosi, KATANUMA Isao, KAWAMORI Eiji, KOHAGURA Jyunko, NAKASHIMA Yousuke, OKAMOTO Yuji, SAITO Teruo, TATEMATSU Yoshinori, YATSU Kiyoshi, YOSHIKAWA Masashi	94
Research on High-Beta Plasmas Based on Two-Fluid Relaxation Theory .....	OGAWA Yuichi, HIMURA Haruhiko, HIROTA Makoto, HORI Dan, ITOH Atsushi, KONDOH Shigeo, MORIKAWA Junji, NAKASHIMA Chihiro, NIHEI Hitoshi, NUMATA Ryusuke, OHHASHI Manabu, OHKUNI Kohtarō, OHSAKI Shuichi, SAITOH Haruhiko, SHATASHVILI Nana, VOLPONI Francesco, WAKABAYASHI Hidenori, YOSHIDA Zensho	100
Magnetic Confinement Fusion Research in China .....	YUAN xi Wan	106
Mechanisms of Transport in Radiative Improved Mode .....	TOKAR M.Z., DUMORTIER P., JACKSON G.L., KALUPIN D., MURAKAMI M., MESSIAEN A.M., NORDMAN H., ONGENA J., REISER D., SINGH R., STAEBLER G.M., SYDORA R., UNTERBERG B., WEILAND J., WEYNANTS R.R.	112

The Impact of the New Island Divertor on the Plasma Performance in the W7-AS Stellarator .....	
..... GRIGULL Peter, McCORMICK Kent, BURHENN Rainer, BRAKEL Rudolf, EHMLER Hartmut, FENG Yuehe, GADELMEIER Franz, GIANNONE Louis, HILDEBRANDT Dieter, JAENICKE Rolf, KISSLINGER Johann, KLINGER Thomas, KNAUER Jens, KOENIG Ralf, KUEHNER Georg, NAUJOKS Dirk, NIEDERMEYER Helmut, PASCH Ekkehard, RAMASUBRAMANIAN Narayanan, RUST Norbert, SARDEI Francesco, WAGNER Friedrich, WELLER Arthur, WENZEL Uwe, W7-AS TEAM	118
Study of Time Evolution of Toroidal current in LHD .....	
..... WATANABE Kiyomasa Y., SAKAKIBARA Satoru, SASAO Hajime, YAKOVLEV Michael, NISHIMURA Kiyohiko, MURAKAMI Sadayoshi, NAKAJIMA Noriyoshi, YAMADA Hiroshi, NARIHARA Kazushige, YAMADA Ichihiko, TANAKA Kenji, KAWAHATA Kazuo, TOKUZAWA Tokihiko, IDA Katsumi, MORITA Shigeru, KANEKO Osamu, TSUMORI Katsuyoshi, IKEDA Katsunori, NARUSHIMA Yoshirou, MORISAKI Tomohiro, KOMORI Akio, LHD experimental group, LHD Device Engineering Group	124
Global Particle Balance of Long Duration Discharges on TRIAM-1M .....	SAKAMOTO Mizuki and TRIAM Group 131
Status of the ITER Project .....	TSUNEMATSU Toshihide, NAGAMI Masayuki 137
FIRE, Exploring the Frontiers of Burning Plasma Science .....	MEADE Dale, JARDIN Stephen, KESSEL Charles, MANDREKAS John, ULRICKSON Michael, HEITZENROEDER Phil, TITUS Peter, SCHMIDT John 143
Stellarator Fusion Reactors – an Overview .....	BEIDLER Craig D., HARMEYER Ewald, HERRNEGGER Franz, KISSLINGER Johann, IGITKHANOV Yuri, WOBIG Horst 149

## CONTRIBUTED PAPERS

Passive and Active Corpuscular Diagnostic Techniques for Studying LHD Plasma High-energy Particle Physics .....	
..... GONCHAROV Pavel R., LYON James F., OZAKI Tetsuo, SUDO Shigeru, SASAO Mamiko, ISOBE Mitsutaka, KRASILNIKOV Anatolii V., KUTEEV Boris V., SERGEEV Vladimir Yu., BAKHAREVA Olga V., KHLOPENKOV Konstantin V., TAMURA Naoki, LHD Experimental Groups I / II	159
A Computational Model for He <sup>+</sup> Ions in a Magnetized Sheet Plasma: Comparative Analysis between Model and Experimental Data .....	BLANTOCAS Gene Q., RAMOS Henry J., WADA Motoi 163
Observation of Charge-Exchange Spectra on C <sup>6+</sup> +H in Low-Energy Collision .....	
..... KOBUCHI Takashi, SATO Kuninori, GOTO Motoshi, OHYABU Nobuyoshi, KAWAHATA Kazuo, SUDO Shigeru, MOTOJIMA Osamu, LHD Experimental Group	167
Properties of OV Spectral Lines in Ionizing and Recombining Plasmas .....	MURAKAMI Izumi, KATO Takako, SAFRONOVA Ulyana I., KOBUCHI Takashi, GOTO Motoshi, MORITA Shigeru 171
Neutralization Effect on Energetic Proton Confinement in LHD .....	SASAO Mamiko, KRASILNIKOV Anatolii V., ISOBE Mitsutaka, SEKI Tetsuo, SAITO Kenji, SAIDA Tomoya, MURAKAMI Sadayoshi, LHD-Experimental Group 175
Characterization of Compact Accelerator DD Neutron Source for <i>in situ</i> Calibration Experiment on Neutron Measurement at LHD .....	SHIBATA Yasunari, IGUCHI Tetsuo, SASAO Mamiko, OGATA Tomohiro, UMEMURA Norihiro, ASAI Keisuke, KAWARABAYASHI Jun 179
Electron Temperature Measurement Using Electron Cyclotron Emission on LHD .....	
..... NAGAYAMA Yoshio, INAGAKI Shigeru, ITO Yasuhiko, KAWAHATA Kazuo, MORISAKI Tomohiro, KOMORI Akio, NARIHARA Kazumichi, OHYABU Nobuyoshi, SAKAKIBARA Satoru, TANAKA Kenji, LHD Experimental Group	184
Study of Electron Bernstein Wave Emission on TST-2 .....	SHIRAIWA Syun'ichi, NAGASHIMA Yoshihiko, USHIGOME Masayasu, KASUYA Naohiro, NOZATO Hideaki, KASAHARA Hiroshi, YAMADA Takuma, WADA Hirohumi, IJIMA Daisuke, KOBORI Yosuke, NISHI Tomoichiro, TANIGUCHI Tomokazu, EJIRI Akira, TAKASE Yuichi 189
Design of the Collective Thomson Scattering Diagnostics for Large Helical Device Using a Quasi-optical Frequency Tunable Gyrotron as a Radiation Source .....	PAVLICHENKO Rostyslav, IDEHARA Toshitaka, OGAWA Isamu, SATO Motoyasu, KAWAHATA Kazuo 193
Thomson Scattering Measurement in Heliotron J .....	OKADA Hiroyuki, TSURU Hiroki, IKEDA Yoichi, KONDO Katsumi, SANO Fumimichi, MIZUUCHI Tohru, OBIKI Tokuhiko 197
High Energy Particle Measurements during Long Discharge in LHD .....	
..... OZAKI Tetsuo, GONCHAROV Pavel, LYON Jim, MURAKAMI Sadayoshi, SUDO Shigeru, NAKANISHI Hideya, KOJIMA Mamoru, YAMAUCHI Kenji, SHOJI Mamoru, KUMAZAWA Ryuhei, MUTOH Takashi, SEKI Tetsuo, WATARI Tetsuo, SAITO Kenji, TORII Hiroki, OKA Yoshihide, OSAKABE Masaki, TAKEIRI Yasuhiko, TSUMORI Katsuyoshi, KANEKO Osamu, OHDACHI Stoshi, SASAO Mamiko, SAKAKIBARA Satoru, INAGAKI S., PETERSON Byron, KUBO Shin, SHIMOZUMA Takashi, IDEI Hiroshi, KAWAHATA Kazuo, NAKAMURA Yukio, NODA Nobuaki, OHYABU Nobuyoshi, MOTOJIMA Osamu, FUJIWARA Masami, G1/G2 Experimental Group	201
High Quality Operation of a Submillimeter Wave Gyrotron for Plasma Diagnostics Application .....	
..... OGAWA Isamu, IDEHARA Toshitaka, OKADA Tomokazu, MAEDA Satoshi, IWATA Yosuke, PAVLICHENKO Rostyslav, MITSUDO Seitaro, WAGNER Dietmar, THUMM Manfred 205	

Internal Magnetic Probe Measurement in Heating Experiment of FRC Plasma by Low-Frequency Magnetic Pulse .....	YOSHIMURA Satoru, YAMANAKA Koji, YAMAMOTO Shinichi, MASUMOTO Terutaka, OKADA Shigefumi, GOTO Seiichi	210
Computer Tomography System for Investigation of Translation Process of FRC Plasma on the FIX Device .....	SHINAGAWA Kazumasa, YOSHIMURA Satoru, SUGIMOTO Satoshi, KITANO Katsuhisa, NAKAMURA Atsushi, OKADA Shigefumi, GOTO Seiichi	215
End Loss Measurement of Neutral-Beam-Injected Field-Reversed Configuration Plasma .....	ASAI Tomohiko, OKUBO Mamoru, INOMOTO Michiaki, OKADA Shigefumi, GOTO Seiichi	220
Eigenmode Analysis of Low Frequency Waves in a Field-Reversed Configuration (FRC) .....	IWASAWA Naotaka, OKADA Shigefumi, GOTO Seiichi	225
FRC Translation Experiment into the Neutral Gas Background in the FIX Device .....	OKUBO Mamoru, KODERA Fuji, ASAI Tomohiko, OKADA Shigefumi, GOTO Seiichi	229
$n=1$ Mode Global Motion on Field-Reversed-Configuration Plasmas .....	FUJIMOTO Kayoko, GOTA Hiroshi, TACHIKAWA Eri, OHKUMA Yasunori, TAKAHASHI Tsutomu, NOGI Yasuyuki	234
Confinement Characteristics of Low Density FRC Plasma .....	KODERA Fuji, ASAI Tomohiko, OKUBO Mamoru, OKADA Shigefumi, GOTO Seiichi	238
Fabrication of Al-Pt Coating on Ni-Based Superalloys by Sputtering-Ion Beam Technique under Argon Plasma .....	PARCHAMY ARAGHY Homaira, GHORANNEVISS Mahmood, SEDGHI Arman, SHOKOHI Ali	242
Annealing Behavior of Defect Structures in Ni Irradiated by High Energy H and He Ions .....	ISHIZAKI Toshitaka, XU Qiu, YOSHIE Toshimasa, NAGATA Shinji	245
Strain Monitoring System for Cryogenic Structure of Large Helical Device .....	NISHIMURA Arata, TAMURA Hitoshi, IMAGAWA Shinsaku, SATOW Takashi	250
Application of Low Temperature Plasma on Modification of Polypropylene .....	RASHIDI Abosaed, MOUSSAVI POURGHARBI Hossein, MIRJALILI Mohammad, GHORANNEVISS Mabmood	255
Advanced Physics and Plasma Control with Segmented In-vessel Control Coils in the KSTAR Tokamak .....	LEE G.S., IVANOV D.P., YANG H.L., JHANGA Hogun, KIMA J.Y., LEE D.K., YOU K.I., KIMA H.K., BAK J.S., KWON M., HAN J.H., LAST J.	261
Real-Time Plasma Current Control Experiment .....	NISHIMURA Kiyohiko, TAKAMI Shigeyuki, NARUSHIMA Yoshiro, CHIKARAIHI Hirotaka, TAKAHASHI Chihiro, TAKEIRI Yasuhiko, LHD Experimental Group	265
Self-Sustained Turbulence of Current-Diffusive Ballooning Mode and Drift Wave Instabilities .....	UCHIDA Morihisa, FUKUYAMA Atsushi	270
Spatiotemporal Structure of Magnetic Field and Convection Vortices Generated in a Rotating Spherical Shell .....	ISHIHARA Norio, KIDA Shigeo	274
Analytic Modeling of the Feedback Stabilization of Resistive Wall Modes .....	PUSTOVITOV Vladimir D.	278
Formation and Sustainment of Low Aspect Ratio Torus Plasma by ECH in the LATE Device .....	UCHIDA Masaki, HIGAKI Kenichi, YOSHINAGA Tomokazu, IGAMI Hiroe, TANAKA Hitoshi, MAEKAWA Takashi	283
Recent Experiments in Heliotron J .....	OBIKI Tokuhiko, SANO Fumimichi, KONDO Katsumi, WAKATANI Masahiro, MIZUUCHI Tohru, HANATANI Kiyoshi, NAKAMURA Yuji, NAGASAKI Kazunobu, OKADA Hiroyuki, BESSHOU Sakae, NAKASUGA Masahiko, TSURU Hiroki, MANABE Yoshito, SHIDARA Hiroyuki, ANG Wanleng, TAKAMIYA Tasho, IRIGUCHI Masao, TAKEDA Masafumi, KAWAZOME Hayato, MAENO Shogo, TOMIYAMA Keishi, OHNO Yoshinori, KUBO Hiroyasu, NISHIOKA Yusuke, YUKIMOTO Hidetoshi, IJIRI Yoshiyuki, SENJU Tohru, YAGUCHI Keiji, SAKAMOTO Kinzou, TOHSHI Kiyoshi, SHIBANO Masashi, TABARÉS Francisco, TRIBALDOS Victor	288
Profiles of Divertor Plasma in Heliotron J .....	ANG Wanleng, MIZUUCHI Tohru, NAKASUGA Masahiko, SANO Fumimichi, KONDO Katsumi, NAGASAKI Kazunobu, OKADA Hiroyuki, BESSHOU Sakae, MANABE Yoshito, SHIDARA Hiroyuki, KAWAZOME Hayato, MAENO Shogo, TAKEDA Masafumi, TAKAMIYA Tasho, TOMIYAMA Keishi, TSURU Hiroki, OHNO Yoshinori, KUBO Hiroyasu, NISHIOKA Yusuke, YUKIMOTO Hidetoshi, IRIGUCHI Masao, OBIKI Tokuhiko	292
High Power ICRF Heating in the 4 <sup>th</sup> Experimental in LHD .....	YAMAMOTO Taroh, KUMAZAWA Ryuhei, WATARI Tetsuo, MUTOH Takashi, SEKI Tetsuo, SAITO Kenji, TORII Yuki, TAKEUTI Norio, SASAO Mamiko, ISOBE Mitsutaka, OSAKABE Masaki, LHD Experiment Group	297
Hydrogen Plasma Production in the Lower-Hybrid Frequency Range .....	KIKUCHI Hideki, SAKAWA Youichi, SHOJI Tatsuo	302
A Calculation of the Distribution Function of ICRF Heated Plasma in LHD using a Bounce-Averaged Fokker-Planck Equation .....	SAITO Kenji, KUMAZAWA Ryuhei, MUTOH Takashi, SEKI Tetsuo, WATARI Tetsuo, YAMAMOTO Taro, TORII Yuki, TAKEUCHI Norio, SHIMPO Fujio, NOMURA Goro, YOKOTA Mitsuhiko, KATO Akemi, OZAKI Tetsuo, SASAO Mamiko, ISOBE Mitsutaka, OSAKABE Masaki, LHD Experimental Group	306

ICRF Heating using Folded Waveguide Antenna on LHD .....	TORII Yuki, KUMAZAWA Ryuhei, WATARI Tetsuo, MUTOH Takashi, SEKI Tetsuo, SAITO Kenji, YAMAMOTO Taro, TAKEUCHI Norio, SHIMPO Fujio, NOMURA Goro, MATSUSHITA Hiroyuki, WATANABE Tsuguhiko, LHD Experimental Groups I / II	310
The Radio Frequency Characteristics of the Compline Antenna .....	Takeuchi Norio, Kumazawa Ryuhei, Saito Kenji, Watari Tetsuo, Seki Tetsuo, Torii Yuki, Mutoh Takashi, Takase Yuichi, Yamamoto Taro	314
Numerical Simulations of Turbulence in RTP Discharges with Dominant Off-Axis ECH .....	DE BAAR Marco R., THYAGARAJA Anantanarayanan, KNIGHT Peter J., HOGWEIJ Pick G.M., LOPES CARDOZO Niek J.	318
Effect of ECH/ECCD on Sawtooth Oscillations in NB-heated Plasmas in JT-60U .....	ISAYAMA Akihiko, IDE Shunsuke, IKEDA Yoshitaka, SUZUKI Takahiro, KAJIWARA Ken, JT-60 Team	324
Investigation of Turbulence in High-Temperature Plasma by Microwave Scattering Techniques in Modern Stellarators .....	SKVORTSOVA Nina N., BATANOV German M., KOLIK Leonid V., PETROV Alexander E., PSHENICHNIKOV Anton A., SARKSYAN Karen A., KHARCHEV Nikolay K., OHKUBO Kunizo, SHIMOZUMA Takashi, IDEI Hiroshi, YOSHIMURA Yasuo, KUBO Shin, SANCHEZ Joaquin, ESTRADA Tereza, VAN MILLIGEN Boudewijn	328
70 GHz Electron Cyclotron Resonance Heating System for Heliotron J .....	SHIDARA Hiroyuki, NAGASAKI Kazunobu, SAKAMOTO Kinzo, YUKIMOTO Hidetoshi, NAKASUGA Masahiko, SANO Fumimichi, KONDO Katsumi, MIZUUCHI Tohru, OKADA Hiroyuki, BESSHO Sakae, MANABE Yoshito, ANG Wang Leng, KAWAZOME Hayato, MAENO Shogo, TAKEDA Masafumi, TAKAMIYA Tasho, TOMIYAMA Keishi, TSURU Hiroki, OHNO Yoshinori, KUBO Hiroyasu, NISHIOKA Yusuke, IRIGUCHI Masao, ORLOV Victor, PAVELYEV Alexander, TOLKACHEV Alexander, TRIBALDOS Victor, OBIKI Tokuhiko	333
Recent Progress of the High Power ECRF System on JT-60U .....	SEKI Masami, MORIYAMA Shinichi, KAJIWARA Ken, IKEDA Yoshitaka, SAKAMOTO Keishi, IMAI Tsuyoshi, FUJII Tsuneyuki	337
Behavior of Intrinsic and Injected Impurities in Heliotron J ECH Plasmas .....	KAWAZOME Hayato, MAENO Shogo, KONDO Katsumi, IRIGUCHI Masao, TAKEDA Masafumi, MIZUUCHI Tohru, OKADA Hiroyuki, NAGASAKI Kazunobu, SANO Fumimichi, BESSHO Sakae, MANABE Yoshito, SHIDARA Hiroyuki, ANG Wan Leng, TAKAMIYA Tasho, TSURU Hiroki, TOMIYAMA Keishi, OHNO Yoshinori, KUBO Hiroyasu, NISHIOKA Yusuke, YUKIMOTO Hidetoshi, OBIKI Tokuhiko	342
Intermittent Ion Trajectories and Focusing in Spherical Inertial Electromagnetic Confinement .....	BUDAEV Viatcheslav	346
Possible Experiments with K <sup>+</sup> Ions on Large Helical Device to Simulate Alpha Particle Behavior .....	SHISHKIN Alexander, MORIMOTO Shigeyuki, YAMAZAKI Kozo, MOTOJIMA Osamu, INAGAKI Shigeru	351
Compatibility of Different Elements of Confinement Characteristics in Quasi-axisymmetric Stellarators .....	OKAMURA Shoichi, NISHIMURA Shin, ISOBE Mitsutaka, SUZUKI Chihiro, MURAKAMI Sadayoshi, YOKOYAMA Masayuki, SHIMIZU Akihiro, MATSUOKA Keisuke	355
On the Characteristic Difference of Neoclassical Bootstrap Current and Its Effects on MHD Equilibria between CHS Heliotron/Torsatron and CHS-qa Quasi-Axisymmetric Stellarator .....	ISOBE Mitsutaka, OKAMURA Shoichi, NAKAJIMA Noriyoshi, SHIMIZU Akihiro, NISHIMURA Shin, SUZUKI Chihiro, MURAKAMI Sadayoshi, FUJISAWA Akihide, MATSUOKA Keisuke	360
Design of Magnetic Coil System for CHS-qa .....	SHIMIZU Akihiro, OKAMURA Shoichi, ISOBE Mitsutaka, SUZUKI Chihiro, NISHIMURA Shin, MATSUOKA Keisuke	366
Stimulated Cold Fusion by Positronium Atoms .....	EMAMI Zahra	370
A New Design of a Tandem Mirror .....	KATANUMA Isao, TATEMATSU Yoshinori, ISHII Kameo, SAITO Teruo, NAKASHIMA Yousuke, ICHIMURA Makoto, YATSU Kiyoshi	373
Finite $\beta$ Equilibria of Heliotron J Plasmas .....	SUZUKI Yasuhiro, HAYASHI Takaya, NAKAMURA Yuji, KONDO Katsumi	377
Ion Temperature Gradient Driven Instability, Parallel Flow and Enhanced Reversed Magnetic Shear Transition .....	SEN Sudip	381
Analysis of Toroidal Rotation Effects of the Ion Polarization Current on the Neoclassical Tearing Mode .....	TAKEI Nahoko, OZEKI Takahisa, SMOLYAKOV Andrei I., ISAYAMA Akihiko, HAYASHI Nobuhiko, TSUJI-IIO Shunji, SHIMADA Ryuichi	386
Non-Linear Phenomena of Energetic-Ion-Driven MHD Instabilities in LHD .....	YAMAMOTO Satoshi, TOI Kazuo, OHDACHI Satoshi, NAKAJIMA Noriyoshi, SAKAKIBARA Satoru, OSAKABE Masaki, YAMADA Hiroshi, MASUZAKI Takashi, WATANABE Kiyomasa, NARUSHIMA Yoshiro, TAKEIRI Yasuhiko, NARIHARA Kazumichi, YAMADA Ichihiko, KAWAHATA Kazuo, TANAKA Kenji, TOKUZAWA Tokihiko, MORITA Shigeru, GOTO Motoshi, OHYABU Nobuyoshi, LHD Experimental Groups I / II	390
Response of Plasma Density and Radiation to TESPEL Ablation in LHD .....	SERGEEV Vladimir Yu., TAMURA Naoki, KOSTRIOUKOV Artem Yu., INAGAKI Shigeru, KHLOPENKOV Konstantin V., KAWAHATA Kazuo, NAGAYAMA Yoshio, NARIHARA Kazumichi, PETERSON Byron J., TANAKA Kenji, TOKUZAWA Tokihiko, SUDO Shigeru, LHD Experimental Group	395

Transient Transport Studies for Particle and Heat Using Tracer-Encapsulated Solid Pellet Injection in LHD .....		
..... TAMURA Naoki, KHLOPENKOV Konstantin V., SERGEEV Vladimir Yu., KUTEEV Boris V., SUDO Shigeru, MUTO Sadatsugu, SATO Kuninori, FUNABA Hisamichi, INAGAKI Shigeru, NAGAYAMA Yoshio, KAWAHATA Kazuo, LHD Experimental Groups I / II	400	
Fine Structure of Divertor Flow Distributions in the $l = 3$ Uragan-3M Torsatron .....	VOLKOV Yevgen,	
CHECHKIN Viktor, GRIGOR'EVA Ludmila, SMIRNOVA Marina, SOROKOVOY Eduard, NAZAROV Nikolaj, LOZIN Aleksej, TSYBENKO Sergej, LITVINOV Anatolij, SLAVNYJ Aleksandr, ADAMOV Igor', KULAGA Anatolij, MIRONOV Yurij, MIZUUCHI Tohru, MASUZAKI Suguru, YAMAZAKI Kozo	404	
Transient Response of Electron Temperature to Abrupt Plasma Edge Cooling on LHD .....	INAGAKI Shigeru, NAGAYAMA Yoshio, KAWAHATA Kazuo, TAMURA Naoki, KOSTRIOUKOV Yu. Artem, PETERSON J. Byron, SUDO Shigeru, LHD Experimental Group	409
Modification of the Magnetic Field Structure in the Vicinity of the <i>X-Point</i> by the Strong Mirror Field for a Field-Reversed Configuration (FRC) with the Thick <i>Edge-Layer</i> Plasma .....	SUZUKI Yukihiisa, OKADA Shigefumi, GOTO Seiichi	413
Effect of Rotating Helical Magnetic Field on the Turbulence Fractal .....	BUDAEV Viatcheslav, KIKUCHI Yusuke, TOYODA Mitsuhiro, UESUGI Yoshihiko, TAKAMURA Shuichi	418
Physical Properties of Collisionless Pitch Angle Scattering at X-Points and those Effects on Particle Confinement of Field-Reversed Configuration .....	JIMBO Shigeaki, TAKAHASHI Toshiki, KONDOH Yoshiomi	424
Behavior of the Edge Plasma near the Anchor Conducting Plates and Their Effect on the Plasma Confinement in the GAMMA 10 Tandem Mirror .....	NAKASHIMA Yousuke, NATORI Takayoshi, KAWASAKI Yoko, KOBAYASHI Shinji, ISHIMOTO Yuki, KATO Tatsuya, ORITO Kousei, FUKASAWA Takahiro, KATANUMA Isao, ICHIMURA Makoto, CHO Teruji, YATSU Kiyoshi	428
Characteristic Plasma Behaviors in the Divertor Reversed Field Pinch TPE-2M .....	HAYASE Kiyoshi, SATO Yasuhiro, KIYAMA Satoru, MAEJIMA Yoshiki	433
CCD Camera Array System for Electron Density and Temperature Measurement in the LHD Plasma Periphery .....	SHOJI Mamoru, YAMAZAKI Kozo, ICHIMOTO Shinji, LHD Experimental Group	437
Measurement of Bremsstrahlung Profile with a High-Spatial Resolution on LHD .....	NOZATO Hideaki, MORITA Shigeru, GOTO Motoshi, EJIRI Akira, TAKASE Yuichi	442
Development of the Guide Tube for Magnetic High Field Side Pellet Injection .....	KIZU Kaname, SASAJIMA Tadayuki, MASAKI Kei, HIRATSUKA Hajime, ICHIGE Hisashi, HONDA Masao, MIYA Naoyuki	446
Construction of a Toroidal Plasma Confinement Device with a Floating Internal Coil for Studying High Beta Plasmas .....	OGAWA Yuichi, MORIKAWA Junji, OHKUNI Kohtaro, NIHEI Hitoshi, HORI Dan, MITO Toshiyuki, YANAGI Nagato, HISHINUMA Yoshimitsu, IWAKUMA Masataka, UEDE Toshio, ITO Ikuo, NOSE Shin-ichi, FUKUI Shigeo	450
Studies on Modes in Weakly Relativistic Magnetized Plasmas .....	MALIK Hitendra K., NISHIDA Yasushi	454
Behaviors of Unstable Low Frequency Waves by Pump hf Waves in an Inhomogeneous Plasma in the Presence of Beam Ion .....	KOUKETU Takamasa, UTSUNOMIYA Shohei, KAGAYAMA Yoshiaki, SUGAWA Masao, MAEHARA Tsunehiro, SUGAYA Reiji	459
Current Control System for Superconducting Coils of LHD .....	CHIKARAISHI Hirotaka, TAKAMI Sigeyuki, INOUE Tomoyuki, SATOW Takashi, ISE Toshihumi, LHD Experimental Group	463
Interaction between the Helical Coil Current and the Toroidal Plasma Current in the Large Helical Device .....	YANAGI Nagato, CHIKARAISHI Hirotaka, IMAGAWA Shinsaku, SEKIGUCHI Haruo, SAKAKIBARA Satoru, HAMAGUCHI Shinji, MITO Toshiyuki, SATOW Takashi, MOTOJIMA Osamu	467
Study of Post-Arc Plasma Behavior in an AC Circuit Breaker .....	BORGHEI Majid, MAHDAVI Javad, HOJABRI Alireza, GHORANNEVISS Mahmood	471
Improving the Performance of a Negative-ion Based Neutral Beam Injector for JT-60U .....	YAMAMOTO Takumi, UMEDA Naotaka, KURIYAMA Masaaki, LEI Guangjiu, GRISHAM Larry, KAWAI Mikito, OHGA Tokumichi, JT-60 NBI-Team	474
Analysis of ICRF Heating by Three Dimensional Calculation in LHD .....	SEKI Tetsuo, KUMAZAWA Ryuhei, MUTOH Takashi, FUKUYAMA Atsushi, SAITO Kenji, TORII Yuuki, TAKEUCHI Norio, WATARI Tetsuo, LHD Experimental Group	478
The Analysis of Magnetic Island Using Generalized Magnetic Coordinates .....	KURATA Michinari, TODOROKI Jiro	483
The Marginally Stable Pressure Profile and a Possibility of High Beta Plasma Confinement in LHD .....	WATANABE Tsuguhiro, HOJO Hitoshi	487
Tearing Mode in a Heliotron Plasma .....	ICHIGUCHI Katsuji	491
Nonlinear MHD Simulation of Pressure Deformation Dynamics in the Large Helical Device .....	MIURA Hideaki, HAYASHI Takaya, SATO Tetsuya	495

Equilibrium Calculation of Tohoku University Heliac .....	HARADA Koumei, KITAJIMA Sumio, HASHIZUME Hidetoshi, SUZUKI Yasuhiro	500
Effect of Poloidal Rotation on Nonlinear Resistive Wall Mode in Tokamaks .....	SATO Masahiko, HAMAGUCHI Satoshi, WAKATANI Masahiro	505
Resistive Wall Mode Studies in a Reversed Field Pinch with Rotating Helical Field .....	MASAMUNE Sadao, IIDA Motomi	509
Low- $n$ Ideal MHD Analysis in Limiter Plasma on LHD .....	NARUSHIMA Yoshiro, SAKAKIBARA Satoru, WATANABE Kiyomasa, NISHIMURA Kiyohiko, YAMADA Hiroshi, NAKAJIMA Noriyoshi, YAMAZAKI Kozo, COOPER W. Anthony, LHD Experimental Group	514
Simulation on Neoclassical Tearing Mode Stabilization by ECCD for JT-60 Superconducting Tokamak .....	HAYASHI Nobuhiko, OZEKI Takahisa, HAMAMATSU Kiyotaka, TAKIZUKA Tomonori	519
Effect of Electron Parallel Compressibility on Collisionless MHD Modes .....	MATSUMOTO Taro, TOKUDA Shinji, KISHIMOTO Yasuaki, NAITOU Hiroshi	523
Development of Laser Welding Technology for Vanadium and Its Alloys .....	HEO Nam-Jin, NAGASAKA Takuya, MUROGA Takeo, NISHIMURA Arata, SHINOZAKI Kenji, TAKESHITA Noriyuki	527
Advanced Fusion Reactor Design using Remountable HT <sub>2</sub> SC Magnet .....	HASHIZUME Hidetoshi, KITAJIMA Sumio, ITO Satoshi, YAGI Kenjiro, USUI Yoshiaki, HIDA Yujin, SAGARA Akio	532
Magnetic Field and Force of Helical Coils for Force Free Helical Reactor (FFHR) .....	IMAGAWA Shinsaku, SAGARA Akio, WATANABE Kiyomasa, SATOW Takashi, MOTOJIMA Osamu	537
HERCULES (Helical Rotating Cusp Fields Experiments) .....	NISHINO Nobuhiro	541
Low Activation Characteristics of Several Heats of V-4Cr-4Ti Ingot .....	NAGASAKA Takuya, MUROGA Takeo, WU Yican, XU Zengyu, IMAMURA Motoaki	545
Fabrication of Ceramic Coatings on NIFS-HEAT by Arc-source Plasma-assisted Deposition Method for Fusion Blanket Application .....	SUZUKI Akihiro, KOCH Freimut, MAIER Hans, NISHIMURA Hidetoshi, MUROGA Takeo	551
Development of ITER Divertor Plate with Annular Swirl Tube and Tungsten Rods .....	SATO Kazuyoshi, EZATO Koichiro, TANIGUCHI Masaki, SUZUKI Satoshi, AKIBA Masato	556
Microstructure and Helium Release Behavior of Neutron-Irradiated SiC Containing B <sub>4</sub> C .....	PRAMONO Yudi, AKIYOSHI Masafumi, YANO Toyohiko	561
Blanket Experiments Using Enriched Li <sub>2</sub> TiO <sub>3</sub> /Ferritic Steel/Beryllium Assemblies and D-T Fusion Neutrons .....	KLIX Axel, OCHIAI Kentaro, SATO Satoshi, TERADA Yasuaki, MORIMOTO Yuichi, HORI Jun-ichi, YAMAUCHI Michinori, WADA Masayuki, NISHITANI Takeo	565
Numerical Analysis on the He II Heat Transport in Channels with a Porous Spacer .....	HAMAGUCHI Shinji, YANAGI Nagato, SATOW Takashi, OKAMURA Tetsuji	570
Improvement of Critical Current Density and Mechanical Properties of Bi-2223 HTS Bulk for Current Lead Application .....	HISHINUMA Yoshimitsu, NISHIMURA Arata, HIRANO Shinji, YOSHIZAWA Shuji, MATSUMOTO Akiyoshi, KUMAKURA Hiroaki	574
Remarks on Saturation of Energy Confinement in High Density Regime on LHD .....	YAMADA Hiroshi, MORITA Shigeru, MURAKAMI Sadaoyoshi, MIYAZAWA Junichi, SAKAMOTO Ryuichi, SAKAKIBARA Satoru, WATANABE Kiyomasa, TANAKA Kenji, NARIHARA Kazumichi, OSAKABE Masaki, PETERSON Byron, NAKAMURA Yukio, GOTO Motoshi, SUZUKI Hajime, LHD Experimental Group	579
ECH Power Modulation Experiments in LHD .....	KUBO Shin, IDEI Hiroshi, SHIMOZUMA Takashi, YOSHIMURA Yasuo, NOTAKE Takashi, OHKUBO Kunizo, INAGAKI Shigeru, NAGAYAMA Yoshio, NARIHARA Kazumichi, LHD Experimental Group	584
Studies of Internal Magnetic Fluctuation by Runaway Diffusivity in the HL-1M .....	ZHENG Yongzhen, QI Changwei, DING Xuatong, LEE Wenzhong	588
One Possible Method of Mathematical Modeling of Turbulent Transport Processes in Plasma .....	SKVORTSOVA Nina N., BATANOV German M., BENING Vladimir E., KOROLEV Victor Yu., PETROV Alexander E., PSHENICHNIKOV Anton A., SARKSYAN Karen A., KHARCHEV Nikolay K.	594
Proof of Non-Invariance of Magnetic Helicity in Ideal Plasmas and a General Theory of Self-Organization for Open and Dissipative Dynamical Systems .....	KONDOH Yoshiomi, TAKAHASHI Toshiki, James W. Van Dam	598
Particle Transport due to Magnetic Fluctuation in a Field-Reversed Configuration .....	TAKAHASHI Toshiki, HAYAKAWA Yumi, JIMBO Shigeaki, WATANABE Shin-ichi, KONDOH Yoshiomi	603
Particle Simulation Study on Profile Relaxation in Field-Reversed Configurations .....	OHTANI Hiroaki, HORIUCHI Ritoku, SATO Tetsuya, KAWABUCHI Hideyuki	611
Transport Barrier Analysis of LHD Plasmas in Comparison with Neoclassical Models .....	YAMAZAKI Kozo, MINAMI Takashi, NARIHARA Kazuto, TANAKA Kenji, KUBO Shin, LHD Experimental Group	611
Effect of Finite Deviation of Super-Banana Orbit from Magnetic Surface on Neoclassical Transport in Helical Torus .....	TODOROKI Jiro, SANUKI Heiji, ITOH Kimitaka	616

Study of Energetic Particle Confinements in Strongly Inward Shifted Configurations of LHD .....	
..... MURAKAMI Sadayoshi, YAMADA Hiroshi, ISOBE Mitsutaka, SASAO Mamiko, OZAKI Tetsu, OSAKABE Masaki, IKEDA Katsunori, KUMAZAWA Ryuhei, MUTOH Takashi, OKA Yoshihide, SEKI Tetsuo, TAKEIRI Yasuhiko, TUMORI Katsuyoshi, WATARI Tetsuo, WATANABE Kiyomasa, ITO H Kimitaka, KANEKO Osamu, KOMORI Akio, MOTOJIMA Osamu, LHD Experimental Group	620
Electromagnetic ITG Modes in Helical Systems .....	KURODA Tohru, SUGAMA Hideo 625
Extraction of Runaway Electrons from a Helical Device to Utilize as an Electron Source .....	
..... KODERA Kei, TAKEUCHI Yuto, YAMAMOTO Yasushi, YAMADA Hiroshi	630
A New Calculation Method for Neoclassical Flow and Transport of Impurities in Heliotron/Torsatron and Quasi-symmetric Configurations .....	
..... NISHIMURA Shin, SUGAMA Hideo, OKAMURA Shoichi, KANNO Ryutaro, ISOBE Mitsutaka, SUZUKI Chihiro, MATSUOKA Keisuke, CHS Group	634