

CONTENTS

Foreword	v
Preface	
<i>Masaaki Sato, Leader of the Program</i>	vii
SECTION I: CELLULAR FUNCTION AND MOLECULAR OPERATION	1
An Electrochemical Microsystem for Manipulating Living Cells <i>Hirokazu Kaji, Masahiko Hashimoto, Takeaki Kawashima, Takashi Abe, Matsuhiko Nishizawa</i>	3
Manipulating Mammalian Embryos for Research on the Developing Cerebral Cortex <i>Tadashi Nomura, Noriko Osumi</i>	15
Biomechanical Approach to Endothelial Cell Responses to Fluid Shear Stress and Hydrostatic Pressure <i>Toshiro Ohashi, Naoya Sakamoto, Masaaki Sato</i>	23
Progress of our Research in Auditory Mechanics <i>Hiroshi Wada</i>	39
Analysis of the Phase of Neural Excitation Relative to Basilar Membrane Motion in the Organ of Corti Using a Finite-Element Method <i>Masayoshi Andoh, Chihiro Nakajima, Hiroshi Wada</i>	51
Hydrostatic Pressure Influences Sub-Cellular Localization of β -Catenin of Vascular Endothelial Cells <i>Katherine Baria, Yoshiaki Sugaya, Naoya Sakamoto, Toshiro Ohashi, Masaaki Sato</i>	61
Mechanical Properties of Stress Fiber in Adherent Vascular Cells Characterized by <i>In Vitro</i> Micromanipulation <i>Shinji Deguchi, Toshiro Ohashi, Masaaki Sato</i>	71

The Search for Downstream Target Genes of <i>Pax6</i> Using Microarray Analysis <i>Urara Fukuzaki, Noriko Osumi</i>	79
Development of a Non-Implantable Electromagnetic Hearing Aid Using Coils to Vibrate the Ossicles <i>Shinji Hamanishi, Takuji Koike, Wade Chien, Michael E. Ravicz, Saumil N. Merchant, John J. Rosowski, Toshimitsu Kobayashi, Hiroshi Wada</i>	85
Generation of Stable Chinese Hamster Ovary Cell Lines Expressing the Motor Protein Prestin <i>Koji Iida, Michio Murakoshi, Shun Kumano, Kouhei Tsumoto, Katsuhisa Ikeda, Izumi Kumagai, Toshimitsu Kobayashi, Hiroshi Wada</i>	93
Frequency of Shear Stress Modulates Morphology and Integrin Expression of Vascular Endothelial Cells <i>Kazushi Ito, Naoya Sakamoto, Toshiro Ohashi, Masaaki Sato</i>	103
Developmental Contribution of Neural Crest-Derived Cells in Murine Eye Structures <i>Sachiko Kanakubo, Noriko Osumi</i>	111
The Role of <i>Pax6</i> in Postnatal Hippocampal Neurogenesis <i>Motoko Maekawa, Noriko Osumi</i>	121
Effect of Strain Rate on Tensile Properties of Stress Fibers Isolated from Cultured Smooth Muscle Cells <i>Tsubasa Matsui, Shinji Deguchi, Toshiro Ohashi, Masaaki Sato</i>	129
Protection of Outer Hair Cells from Traumatic Noise by Conditioning with Heat Stress <i>Michio Murakoshi, Naohiro Yoshida, Yoko Kitsunai, Koji Iida, Shun Kumano, Toshimitsu Kobayashi, Hiroshi Wada</i>	137
Time-Lapse Observation of Neural Epithelium Cell Behavior in Slice Culture <i>Noriko Nakamura, Noriko Osumi, Yoshio Wakamatsu</i>	145
The Rat <i>Small eye</i> Homozygote (<i>rSey²/rSey²</i>) can be Regarded as a <i>Pax6</i> Null Mutant <i>Keiko Numayama-Tsuruta, Yoko Arai, Noriko Osumi</i>	151

Effect of Fluid Shear Stress on Smooth Muscle Cell Migration and Permeability of Endothelial Monolayer in Endothelial-Smooth Muscle Cells Cocultured Model	163
<i>Naoya Sakamoto, Toshiro Ohashi, Masaaki Sato</i>	
Enzyme-Based Glucose Biofuel Cell Using Vitamin K ₃ -Immobilized Polymer as Electron Mediator	173
<i>Makoto Togo, Tatsuya Asai, Fuyuki Sato, Hirokazu Kaji, Takashi Abe, Matsuhiko Nishizawa</i>	
The Roles of <i>Pax6</i> in Postnatal Hippocampal Neurogenesis in the Mouse	183
<i>Katsuyasu Sakurai, Noriko Osumi</i>	
Circumferential Strain Distribution in Rabbit Thoracic Aorta Using Novel Observation Technique	189
<i>Shukei Sugita, Takeo Matsumoto, Masaaki Sato</i>	
Expression of <i>Sox9</i> -Interacting Protein <i>SC35/Sfrs2</i> in Avian Embryos	199
<i>Takashi Suzuki, Daisuke Sakai, Noriko Osumi, Yoshio Wakamatsu</i>	
Labeling of Neuroepithelial Cells Using Whole Embryo Culture and Gene Transfer Methods to Characterize the Cell Cycle	203
<i>Yuji Tsunekawa, Masanori Takahashi, Noriko Osumi</i>	
Live Imaging of Neuroepithelial Cells in the Rat Spinal Cord by Confocal Laser-Scanning Microscopy	211
<i>Masanori Takahashi, Noriko Osumi</i>	
SECTION II: NANO-MEDICINE	221
Development of Novel Medical Engineering Using Micro-Nanomachining	223
<i>Masayoshi Esashi</i>	
Medical Applications for Implantable Devices Utilizing Electromagnetic Fields	235
<i>Hidetoshi Matsuki, Fumihiro Sato</i>	

Nano-Sensing Capsules for Medical Application: Nano-Particles for Sentinel Navigation and Quantum Dots Conjugation with Anti-HER2 Antibody for Molecular Imaging of Cancer	245
<i>Noriaki Ohuchi, Morio Nakajima, Hiroshi Tada, Takanori Ishida, Motohiro Takeda, Hideo Higuchi</i>	
Biologically Inspired Vision Chip Fabricated Using 3-Dimensional Integration Technology	261
<i>Hiroyuki Kurino, Yoshihiro Nakagawa, Tomonori Nakamura, Yusuke Yamada, Kang-Wook Lee, Tetsu Tanaka, Mitsumasa Koyanagi</i>	
Development of Implantable Real Time Micro Dosimeter System	271
<i>Shogo Yamada, Eiko Nakata, Genki Momose, Youhei Kikuchi, Yoshihiro Ogawa, Issei Mori, Mikio Oishi, Keizo Ishii</i>	
Biomimetic Artificial Myocardium Using Nano Technology	281
<i>Tomoyuki Yambe</i>	
A Schottky Emitter Using Boron-Doped Diamond	295
<i>Joon Hyung Bae, Phan Ngoc Minh, Takahito Ono, Masayoshi Esashi</i>	
Small Diameter Ultrasound Imager for Intraluminal Forward-Looking Inspection	301
<i>Jiun-Jie Chen, Masayoshi Esashi, Yoichi Haga</i>	
Development of Silica Coated Silver Iodide Nano-Particles in Different Sizes for Novel X-Ray Contrast Media	311
<i>Liman Cong, Yoshio Kobayashi, Motohiro Takeda, Noriaki Ohuchi</i>	
Invasive Micropapillary Carcinoma of the Breast (IMPCa): Gene Expression Profile	317
<i>C. De La Cruz, S. Takahashi, T. Moriya, H. Sasano, C. Ishioka</i>	
Development of Low-Power Retinal Prosthesis with Photodetectors and Stimulus Current Generators	321
<i>Taiichiro Watanabe, Jun Deguchi, Takafumi Fukushima, Hiroyuki Kurino, Tetsu Tanaka, Mitsumasa Koyanagi</i>	

MEMS-Based Thin Film Bulk Acoustic Resonator for Wireless Medical Sensing System <i>Motoaki Hara, Masayoshi Esashi</i>	331
Lymphatic Vessel Invasion in Primary Breast Cancer Using Lymphatic Endothelium Marker, D2-40 and Podoplanin <i>Masahiro Ito, Takuya Moriya, Atsuko Kasajima, Takanori Ishida, Noriaki Ohuchi</i>	341
Designing of Transcutaneous Temperature Control System for Implantable Devices <i>Yasuyuki Kakubari, Fumihiko Sato, Hidetoshi Matsuki, Tadakuni Sato, Masaru Higa, Yun Luo, Tomoyuki Yambe</i>	349
Study on Micro Gas Turbine Generator for Medical Assistant Machines <i>Piljoong Kang, Shuji Tanaka, Masayoshi Esashi</i>	359
<i>In Vivo</i> Visualization of Metastasis of Human Breast Cancer Cells Labeled with Quantum Dots in Mice <i>Masaaki Kawai, Hideo Higuchi, Tomonobu M. Watanabe, Hiroshi Tada, Noriaki Ohuchi</i>	369
Piezoelectric Actuator Integrated Cantilever with Tunable Spring Constant for TOF-SFM <i>Yusuke Kawai, Takahito Ono, Ernst Meyer, Christoph Gerber, Masayoshi Esashi</i>	377
Chip-to-Wafer Three-Dimensional Integration Technology for Retinal Prosthesis Chips <i>Hirokazu Kikuchi, Yusuke Yamada, Takafumi Fukushima, Tetsu Tanaka, Mitsumasa Koyanagi</i>	385
Effects of Trastuzumab and Paclitaxel in HER2-Overexpressing Breast Cancer <i>Songhua Li, Hideo Higuchi, Noriaki Ohuchi</i>	395
Quartz-Crystal Cantilevered Resonator for Nanometric Sensing <i>Yu-Ching Lin, Takahito Ono, Masayoshi Esashi</i>	401

Comparative Analysis of Cardio-Ankle Vascular Index Between Japanese and Russians	411
<i>Hongjian Liu, Yoshifumi Saijo, Xiumin Zhang, Yasuyuki Shiraishi, Kazumitsu Sekine, Mitsuya Maruyama, Yori A. Kovalev, Irina A. Milyagina, Viktor A. Milygin, Tomoyuki Yambe</i>	
MEMS-Based Fuel Cell for Portable Medical Applications	419
<i>Kyong-Bok Min, Shuji Tanaka, Masayoshi Esashi</i>	
Primary Power Factor Controlled Transcutaneous Energy Transmission System	435
<i>Hidekazu Miura, Fumihiko Sato, Hidetoshi Matsuki, Tadakuni Sato</i>	
Enhanced Electron Emission Using Indium Tin Oxide/Silicon Monoxide/Gold Structure	443
<i>Magdy Hussein Mourad, Kentaro Totsu, Shinya Kumagai, Seiji Samukawa, Masayoshi Esashi</i>	
Neuromorphic Analog Circuits for Three-Dimensionally Stacked Vision Chip	455
<i>Jun Liang, Yoshihiro Nakagawa, Jun Deguchi, Jeoung-Chill Shim, Takafumi Fukushima, Hiroyuki Kurino, Tetsu Tanaka, Mitsumasa Koyanagi</i>	
Nano-Sized Fluorescent Particles as New Tracers for Sentinel Node Detection: An Experimental Model for Decision of Appropriate Size and Wavelength	465
<i>Morio Nakajima, Motohiro Takeda, Masaki Kobayashi, Noriaki Ohuchi</i>	
Implantable Real Time Microdosimeter System: Experimental Methods and Results	473
<i>Eiko Nakata, Shogo Yamada, Genki Momose, Youhei Kikuchi, Yoshihiro Ogawa, Issei Mori, Mikio Oishi, Keizo Ishii</i>	
Nondestructive Detection of Cracks in a Distribution Line by Evaluating Magnetic Field Distribution	481
<i>T. Nonaka, H. Yoshimi, F. Sato, H. Matsuki, T. Sato</i>	

Fluorescence <i>In Situ</i> Hybridization Analysis of Breast Cancer: Positive Association Between Loss of 17p13 and HER2 Overexpression <i>Mitsue Oguma, Takuya Moriya, Shinichi Fukushige, Takanori Ishida, Akira Horii, Noriaki Ohuchi</i>	489
Lithium Niobate Bulk Micromachining for Medical Sensors <i>Andrew Randles, Shuji Tanaka, Masayoshi Esashi</i>	495
Generation of Nanosized Silver-Iodide Beads for Medical Application <i>Yuu Sakurai, Motohiro Takeda, Yoshio Kobayashi, Noriaki Ohuchi</i>	505
Computer Simulation of Eddy Current Loss Reduction for Rechargeable Cardiac Pacemaker <i>Taku Sato, Fumihiro Sato, Hidetoshi Matsuki, Tadakuni Sato</i>	509
<i>In Vivo</i> Breast Cancer Cell Imaging Using Quantum Dot Conjugated with Anti-HER2 Antibody <i>Hiroshi Tada, Hideo Higuchi, Tomonobu M. Watanabe, Noriaki Ohuchi</i>	515
Development of Soft Heating Hyperthermia by the Complex Type of Heat Element <i>Tetsuya Takura, Takeshi Maruyama, Fumihiro Sato, Hidetoshi Matsuki, Tadakuni Sato, Setsuya Aiba</i>	521
Development of Ultra-Miniature Fiber-Optic Pressure Sensor <i>Kentaro Totsu, Yoichi Haga, Tadao Matsunaga, Masayoshi Esashi</i>	529
Pathological Problems Regarding Core Needle Biopsy for Non-Palpable Tumors of the Breast <i>Shin Usami, Takuya Moriya, Takanori Ishida, Noriaki Ohuchi</i>	541
Analysis of Induced Mutations in UVB-Irradiated Skin from Mice Expressing C-Terminal Truncated XPG Mutant Proteins <i>Feng Wang, Shogo Yamada, Hironobu Ikehata, Tadahiro Shiomi, Tetsuya Ono</i>	551

Evaluation of the Hemodynamic Parameters During Circulatory Assistance Using an Electro-Hydraulic Artificial Myocardium System <i>Qingtian Wang, Tomoyuki Yambe, Yasuyuki Shiraishi, Kazumitsu Sekine, Yoshifumi Saijo, Shin-Ichi Nitta, Makoto Yoshizawa, Mitsuo Umezu, Kouichi Tabayashi</i>	557
Parametrically Amplified Resonant Sensor with Pseudo-Cooling Effect <i>Takahito Ono, Hiroataka Wakamatsu, Masayoshi Esashi</i>	565
Artificial Esophagus with Peristaltic Movement <i>Makoto Watanabe, Kazumitsu Sekine, Yoshio Hori, Yasuyuki Shiraishi, Takeshi Maeda, Dai Honma, Go Miyata, Yoshifumi Saijo, Tomoyuki Yambe</i>	577
Evaluation of Electrical Stimulus Current Applied to Retinal Cells for Retinal Prosthesis <i>Taiichiro Watanabe, Keita Motonami, Takafumi Fukushima, Hiroyuki Kurino, Tetsu Tanaka, Mitsumasa Koyanagi</i>	585
Monolithic PZT Microstage with Multi-Degrees of Freedom for the Application of Nanopositioning <i>Hegen Xu, Takahito Ono, Masayoshi Esashi</i>	601
Development of New Three-Dimensional Integration Technology for Retinal Prosthesis <i>Yusuke Yamada, Jun Deguchi, Taiichiro Watanabe, Takafumi Fukushima, Hiroyuki Kurino, Tetsu Tanaka, Mitsumasa Koyanagi</i>	613
Reversible Electrical Modification on Conductive Polymer for Proximity Probe Data Storage <i>Shinya Yoshida, Takahito Ono, Shuichi Oi, Masayoshi Esashi</i>	623
SECTION III: IMAGING OF THE BIOLOGICAL MOLECULE AND STRUCTURE	633
Anatomical and Functional Mapping of the Human Brain: Japanese Brain Image Database Project <i>Hiroshi Fukuda, Shigeo Kinomura, Yasuyuki Taki, Ryoji Goto, Kentaro Inoue, Ken Okada, Shinya Uchida, Kazunori Sato, Ryuta Kawashima</i>	635

Development of Micro-Imaging Technologies for Biomedicine <i>Keizo Ishii, Hiromichi Yamazaki, Shigeo Matsuyama, Youhei Kikuchi, Masakazu Inomata</i>	649
Brain Imaging of Quality of Life Using Positron Emission Tomography <i>Masatoshi Itoh, Manabu Tashiro</i>	663
Transcutaneous Viscoelasticity Estimation of Heart Wall Using Ultrasound <i>Hiroshi Kanai</i>	673
Molecular Imaging of the Histaminergic Neuron System Using Positron Emission Tomography (PET) <i>Motohisa Kato, Kazuhiko Yanai, Nobuyuki Okamura, Manabu Tashiro, Ren Iwata</i>	683
Behaviour of Mylar Foil Used as Beam Extraction Window During Irradiation at Atmospheric Pressure <i>Yves Barbotteau, Keizo Ishii, Keiko Mizuma, Hiromichi Yamazaki, Shigeo Matsuyama, Takuro Sakai, Takahiro Sato, Tomihiro Kamiya</i>	693
Effect of Early Social Isolation on Cognitive Function and Application to the Metal in a Brain by PIXE Analysis <i>Hongmei Dai, Eiko Sakurai, Keizo Ishii, Kazuhiko Yanai</i>	701
Localization of Cerebral Activity and Autonomic Nervous Function During Lavender Aromatic Immersion <i>Xudong Duan, Manabu Tashiro, Takeshisa Sasaki, Kazuaki Kumagai, Di Wu, Tomoyuki Yambe, Qingtian Wang, Shin-Ichi Nitta, Masatoshi Itoh</i>	709
Ultrasonic Cross-Sectional Imaging and Measurement of Motion and Mechanical Properties of Arterial Walls <i>Hideyuki Hasegawa, Jun Inagaki, Takashi Mashiyama, Takanori Numata, Masataka Ichiki, Fumiaki Tezuka, Hiroshi Kanai</i>	719
Accuracy Evaluation of Ion Beam Irradiation in Particle Radiotherapy <i>Azusa Ishizaki, Keizo Ishii, Hiromichi Yamazaki, Shigeo Matsuyama, Atsuki Terakawa, Taizo Honda, Yuuki Totsuka, Takuya Miyashita</i>	735

Human Brain Metabolic Changes Induced by Actual Car-Driving <i>Myeonggi Jeong, Manabu Tashiro, Laxsmi N. Singh, Keiichiro Yamaguchi, Masayasu Miyake, Shoichi Watanuki, Hiroshi Fukuda, Yasuo Takahashi, Masatoshi Itoh</i>	743
Changes in Global and Regional Brain Glucose Metabolism Associated with Ergometer Exercise <i>Sabina Khondkar, Toshihiko Fujimoto, Shoichi Watanuki, Manabu Tashiro, Masatoshi Itoh</i>	749
Automatic Medical Image Registration Using Mutual Information <i>Kazuaki Kumagai, Takehisa Sasaki, Keiichiro Yamaguchi, Sulistyoningsih Margaretha, Masayasu Miyake, Shoichi Watanuki, Manabu Tashiro, Masatoshi Itoh</i>	755
Homeostatic Control of Whole-Body Energy Metabolism by Exercise: A Positron Emission Tomography Study <i>Mehedi Masud, Toshihiko Fujimoto, Manabu Tashiro, Masayasu Miyake, Shoichi Watanuki, Masatoshi Itoh</i>	761
Pain Caused by the Activation of Nociceptive-Specific Neurons in the Central Nervous System <i>Jalal Izadi Mobarakeh, Kazuhiko Yanai, Kazuhiro Takahashi, Shinobu Sakurada</i>	771
Imaging of Histamine H1 Receptors in Human Brains with PET and [¹¹ C]Doxepin <i>Hideki Mochizuki, Manabu Tashiro, Nobuyuki Okamura, Kazuhiko Yanai</i>	785
Preliminary Evaluation of Wireless Communication System for Implantable Real Time Radiation Dosimeter System <i>Genki Momose, Keizo Ishii, Shogo Yamada, Eiko Nakata</i>	795
Improvement in the Quantitative Accuracy and Quality of PET Images Reconstructed by ML-EM Algorithm <i>Yukihiro Oishi, Keizo Ishii, Hiromichi Yamazaki, Shigeo Matsuyama, Youhei Kikuchi, Mario Rodriguez, Atsuro Suzuki, Takashi Yamaguchi, Masatoshi Itoh, Shoichi Watanuki</i>	805

- The Comparison of Brain Structure Between Exercised and Non-Exercised Students 809
Hiroomi Sensui, Toshihiko Fujimoto, Toshiya Nagamatsu, Manabu Tashiro, Masatoshi Itoh
- Use of Reference Tissue Models for Quantification of Histamine H₁ Receptors in Human Brain by Using Positron Emission Tomography and [¹¹C]Doxepin 817
Atsuro Suzuki, Keizo Ishii, Manabu Tashiro, Yuichi Kimura, Kenji Ishii, Kiichi Ishiwata, Hideki Mochizuki, Kazuhiko Yanai, Miroshi Watabe
- O-[¹⁸F]Fluoromethyl-L-Tyrosine for Differentiation Between Tumor and Inflammation 829
Manami Suzuki, Keiichiro Yamaguchi, Go Honda, Ren Iwata, Shozo Furumoto, Myeonggi Jeong, Manabu Tashiro, Hiroshi Fukuda, Masatoshi Itoh
- The Change of Brain Activation with Increase of Stimulus Presentation Rate During the Paced Visually Serial Addition Test 837
Shinya Uchida, Jobu Watanabe, Motoaki Sugiura, Naoki Miura, Kazuki Iwata, Shigeo Kinomura, Kazunori Sato, Kaoru Horie, Shigeru Sato, Hiroshi Fukuda, Ryuta Kawashima
- Development of an Image Reconstruction Method for Micron-CT Using PIXE 847
Takashi Yamaguchi, Keizo Ishii, Hiromichi Yamazaki, Shigeo Matsuyama, Yoshito Watanabe, Shigeru Abe, Masakazu Inomata, Azusa Ishizaki, Ryohei Oyama, Yu Kawamura
- SECTION IV: MEDICAL INFORMATICS 855**
- Numerical Realization of Blood Flow in Aneurysmal Aorta by Integrating Measurement and Simulation 857
Toshiyuki Hayase, Kenichi Funamoto, Takayuki Yamagata, Lei Liu, Atsushi Shirai, Makoto Ohta, Kosuke Inoue, Yoshifumi Saijo, Tomoyuki Yambe
- Computational Approaches to Hemodynamics Analysis from Micro to Macro Scales 869
Takami Yamaguchi

Japanese Research Trends Toward Biomedical Assessment of Digital Contents	879
<i>Makoto Yoshizawa, Hiroyasu Ujike, Toru Kiryu</i>	
Method to Evaluate the Physiological Effects of Visual Stimulation Using Finger Photoplethysmography	893
<i>Makoto Abe, Makoto Yoshizawa, Norihiro Sugita, Akira Tanaka, Shigeru Chiba, Tomoyuki Yambe, Shin-Ichi Nitta</i>	
Numerical Simulation of the Arterial Wall Growth Induced by Wall Shear Stress	899
<i>Edouard Boujo, Shigeo Wada, Takami Yamaguchi</i>	
A Computer Simulation Study on the Early Progression of Intracranial Aneurysms: A Comparison Between Straight Model and Curved Model	909
<i>Yixiang Feng, Shigeo Wada, Ken-Ichi Tsubota, Takami Yamaguchi</i>	
A Fluid-Solid Interaction Study of the Pulse Wave Velocity in Uniform Arteries	919
<i>Tomohiro Fukui, Kim H. Parker, Yohsuke Imai, Ken-Ichi Tsubota, Takuji Ishikawa, Shigeo Wada, Takami Yamaguchi</i>	
Three Dimensional Imaging of Cerebral Vasculature for Computer Fluid Dynamics in Rat: Feasibility of Assessment with Micro-CT	929
<i>Chuan He, Akira Takahashi, Toshio Nakayama, Makoto Ohta</i>	
The Laser-Induced Liquid Jet Catheter System for Endovascular Fibrinolysis in Acute Cerebral Embolisms: <i>In Vitro</i> Study	935
<i>Takayuki Hirano</i>	
Biological Effect of Shock Waves: Brain Damage by Shock Waves in Rats – Pressure Dependence	949
<i>Kaoruko Kato, Miki Fujimura, Atsuhiko Nakagawa, Atsushi Saito, Teiji Tominaga, Masayuki Ezura, Akira Takahashi, Kazuyoshi Takayama</i>	
The Effect of the Internal Carotid Artery Flow on the Hemodynamics in the Distal Cerebral Aneurysm: A Patient-Specific CFD Study	955
<i>Naoto Kimura, Shigeo Wada, Yasushi Matsumoto, Masayuki Ezura, Akira Takahashi, Takami Yamaguchi</i>	

CFD Tools in Engineering Design Studies and Medical Sciences <i>Prakash S. Kulkarni</i>	961
Velocity Fields of Blood Flow in Microchannels Using a Confocal Micro-PIV System <i>Rui Lima, Takuji Ishikawa, Shuji Tanaka, Motohiro Takeda, Ken-Ichi Tsubota, Shigeo Wada, Takami Yamaguchi</i>	973
Experimental Validation of Ultrasonic-Measurement-Integrated Simulation for Blood Flow in Aorta <i>Lei Liu, Kosuke Inoue, Toshiyuki Hayase, Makoto Ohta</i>	981
Home-Health Care Support System for Caregivers Using Wearable System <i>Fumio Mizuno, Tomoaki Hayasaka, Toshihiko Yoshida, Ken-Ichi Tsubota, Shigeo Wada, Takami Yamaguchi</i>	987
Computational Fluid Dynamics of the Blood Flow in the Thoracic Aorta with Respect to the Pathogenesis of the Aortic Aneurysm <i>Daisuke Mori, Takami Yamaguchi</i>	997
Application of Shock Wave for the Treatment of Bone Defect in the Skull: Experiment On Young Rat Calvarium <i>Atsuhiko Nakagawa, Takayuki Hirano, Teiji Tominaga, Masayuki Ezura, Akira Takahashi, Kazuyoshi Takayama</i>	1007
Numerical Analysis of Blood Flow in the Left Ventricle and the Aorta <i>Masanori Nakamura, Suguru Yokosawa, Takami Yamaguchi, Shigeo Wada</i>	1015
Evaluation of an Index for Cardiac Function During Assistance with a Rotary Blood Pump <i>D. Ogawa, A. Tanaka, K. Abe, P. Olegario, K. Kasahara, Y. Shiraishi, K. Sekine, T. Yambe, S. Nitta, M. Yoshizawa</i>	1025
Quantitative Evaluation of Effects of Visual Stimulation Based on Cardiovascular Parameters <i>Norihiro Sugita, Makoto Yoshizawa, Makoto Abe, Akira Tanaka, Ken-Ichi Abe, Shigeru Chiba, Tomoyuki Yambe, Shin-Ichi Nitta</i>	1035
Development of Ultrasonic-Measurement-Integrated Simulation System for Complex Blood Flows <i>Takayuki Yamagata, Toshiyuki Hayase</i>	1045

Three Dimensional Visualization and Analysis of Cardiovascular Blood Flow Using CT and MRI: Comparison of Experimental Studies and Computer Simulations <i>Shuji Yamamoto, Takami Yamaguchi</i>	1053
SECTION V: MISCELLANEOUS	1063
Automatic Brain Tissue Segmentation Method from MRI T1-Weighted Data <i>Naoki Miura, Makoto Takahashi, Ryuta Kawashima, Masaharu Kitamura</i>	1065
A Wearable Braille Reader Using a Soft Piezoelectric Film <i>Kaoru Miyata, Mami Tanaka, Tatsuo Nishizawa, Seiji Chonan</i>	1071
Acquisition of Higher-Order Motor Information from Primate Medial Frontal Motor Areas <i>Toshi Nakajima, Hajime Mushiake, Jun Tanji</i>	1077
Real-Time Cooperating Motion Generation for Man-Machine Systems and Its Application to Medical Technology <i>Fumi Seto, Yasuhisa Hirata, Kazuhiro Kosuge</i>	1085
Development of a Tactile Sensor System (Tactile Warmth Compared with PVDF Sensor Output) <i>Yoshihiro Tanaka, Mami Tanaka, Seiji Chonan</i>	1095
Event-Related and Spontaneous EEG Correlates of Concurrent Functional MRI <i>Xiaohong Wan, Jorge Riera, Makoto Takahashi, Toshio Wakabayashi, Ryuta Kawashima</i>	1105
Author Index	1111