

## CONTENTS

New Trend in Applied Plasma Science and Technology .....	ix
A. Kobayashi	
Committees and Sponsors .....	xiii

### PLASMA SOURCES

4D Density Determination of NH Radicals in an MSE Microplasma Combining Planar Laser Induced Fluorescence and Cavity Ring-Down Spectroscopy .....	3
M. Visser, A. Schenk, and K.-H. Gericke	
Current Interrupting Capability of Switch Equipped with Deion Plates and Electromagnetic Force Applied to the Arc .....	8
Y. Yokomizu, T. Matsumura, and S. Fujiwara	

### PLASMA PROPULSIONS

Chemically-Assisted Pulsed Laser-Ramjet .....	17
H. Horisawa, T. Kaneko, and K. Tamada	
Laser-Assisted Micro-Pulsejet Thruster .....	23
H. Horisawa and S. Eto	

### PLASMA PROCESSINGS

Mechanical Properties and Microstructure of Plasma Sprayed Ni-Based Metallic Glass Coating .....	33
A. Kobayashi, T. Kuroda, H. Kimura, and A. Inoue	
Development of B-C-N-O Diaphragm for Environmental Cell Transmission Electron Microscope by Plasma Enhanced Chemical Vapor Deposition .....	39
H. Tsutsui, T. Matsutani, and T. Kawasaki	

### PLASMA APPLICATIONS TO ENVIRONMENTAL PROBLEMS

Treatment Characteristics of Second Order Structure of Proteins Using Low-Pressure Oxygen RF Plasma .....	47
N. Hayashi, A. Nakahigashi, R. Kawaguchi, and M. Goto	

**TECHNICAL NOTE**

<b>Rectangular Pulsed Laser-Electromagnetic Hybrid Accelerator</b> .....	<b>55</b>
Y. Kishida, M. Katayama, and H. Horisawa	
<b>Treatment Characteristics of Polysaccharides and Endotoxin Using Oxygen Plasma Produced by RF Discharge</b> .....	<b>59</b>
S. Kitazaki, N. Hayashi, and M. Goto	
<b>Laser Ablation of Biological Tissue Using Pulsed-CO<sub>2</sub> Laser</b> .....	<b>63</b>
Y. Hashishin, S. Sano, and T. Nakayama	

**EDITOR SELECTED PAPERS**

<b>A Novel Solid Electrolyte Oxygen Sensor System for In-Situ Measurement and Process Control</b> .....	<b>69</b>
F. U. Hammer, E. Messerschmid, and M. Rogg	
<b>Investigations of Buffer-Gases Role in Xenon and Halogen Excimer Mixtures</b> .....	<b>75</b>
L. C. Ciobotaru and C. C. Porosnicu	
<b>Interaction of Plasma Discharges with a Flame: Experimental and Numerical Study</b> .....	<b>82</b>
A. Vincent-Randonnier and D. Teixeira	
<b>Research and Development of Electrothermal Pulsed Plasma Thrusters Onboard PROITERES Satellite</b> .....	<b>87</b>
H. Tahara, M. Naka, H. Takagi, T. Ikeda, and Y. Watanabe	
<b>Surface Modification of Material by Irradiation of Low Power Atmospheric Pressure Plasma Jet</b> .....	<b>92</b>
H. Akamatsu, K. Ichikawa, K. Azuma, and M. Onoi	
<b>Plasma Cleaning of Oxides from Surfaces: The State of the Art</b> .....	<b>96</b>
V. S. Voitsevich, S. Masuzaki, O. Motojima, and J. W. Davis	
<b>Effects of Processing Parameters on Internal Stress of BN Films Prepared by Ion Mixing and Vapor Deposition</b> .....	<b>103</b>
S. Hanaki, B. Leng, and H. Uchida	
<b>Generation Mechanism of Internal Stress of BN Films Prepared by Ion Mixing and Vapor Deposition</b> .....	<b>107</b>
K. Mukoyama, S. Hanaki, and H. Uchida	
<b>Development of Parallel Image Detection System Using Annular Pupils for Scanning Transmission Electron Microscope</b> .....	<b>111</b>
T. Matsutani, M. Taya, T. Tanaka, Y. Kimura, Y. Takai, T. Kawasaki, M. Ichihashi, and T. Ikuta	
<b>OH Production Enhancement in Bubbling Pulsed Discharges</b> .....	<b>115</b>
C. P. Lungu, C. Porosnicu, I. Jepu, P. Chiru, V. Zaroschi, A. M. Lungu, N. Saito, M. Bratescu, O. Takai, T. Velea, and V. Predica	

<b>Emission Characteristics and Stability of Laser Ion Sources</b> .....	<b>119</b>
J. Krása, A. Velyhan, E. Krouský, L. Láska, K. Rohlena, K. Jungwirth, J. Ullschmied, A. Lorusso, L. Velardi, V. Nassisi, A. Czarnecka, L. Ryé, P. Parys, and J. Wolowksi	
<b>Formation of Ni-Base Self-Fluxing Alloy Layers by Diode Laser Cladding with Powder Feeder</b> .....	<b>123</b>
T. Kusuhara, J. Morimoto, T. Ozaki, N. Abe, and M. Tsukamoto	
<b>Blasting to the Substrate of Various Temperatures</b> .....	<b>127</b>
T. Kubohori, Y. Tojo, and Y. Inui	
<b>Analytical Characterization of Natural Clay</b> .....	<b>132</b>
R. El-Sheikhy and M. Al-Shamrani	
<b>Author Index</b> .....	<b>137</b>