

CONTENTS**Special Issue: 8th Japan-China-Korea Workshop on Microgravity Sciences for Asian Microgravity Pre-Symposium**

Organizations	S1
Preface	
Preface by JASMA President	H. OHTA • S3
Preface by 8JCK Chairman	K. TSUKAMOTO • S4
Crystal Growth	
Growth of SiGe Crystals by the Traveling Liquidus Zone (TLZ) Method - Preliminary Experiments on the Ground -	K. KINOSHITA, Y. ARAI, H. MIYATA, R. TANAKA, T. SONE, J. YOSHIKAWA, T. KIHARA, H. SHIBAYAMA, Y. INATOMI, M. TAKAYANAGI and S. YODA • S5
Interferometric Observation of Temperature Distributions in the Smoke Experiment	Y. KIMURA and K. TSUKAMOTO • S9
Experimental Facilities	
The Facility for Pulverized Coal Combustion under Microgravity	Q. YU, G. AI, L. WU, M. XU and B. ZHOU • S13
Fundamental Sciences	
Colloidal Gas-Liquid-Solid Phase Diagram in Low Ionic Strength Solutions	M. ISHIKAWA and R. KITANO • S17
Experiments of Fine-Particle Plasma using Planar Magnetron Plasma System	Y. HAYASHI, Y. MIZOBATA and K. TAKAHASHI • S23
Strongly Coupled Plasmas under Microgravity	H. TOTSUJI, K. TAKAHASHI, S. ADACHI, Y. HAYASHI and M. TAKAYANAGI • S27
Life Sciences in Space	
Effects of Clinostat Culture on Morphology and Gene Expression of MLO-Y4 Osteocyte-Like Cells	H. XU, Y. WENG, L. AN, J. ZHANG and P. SHANG • S31
Fibronectin is Involved in Gravity-Sensing of Osteoblast Like Cell	J. LI, L. WANG, G. HE, M. LUO, A. QIAN and P. SHANG • S36
Weightlessness Simulated with Random Positioning Machine Influences the Cytoskeleton and Migration of MC3T3-E1 Cells	M. LUO, R. MENG, S.S. LI, S. M. DI, J. HAN, W. ZHANG and P. SHANG • S41
Materials Science and Advanced Functional Materials	
Crystal Growth of InGaSb Alloy Semiconductor at International Space Station: Preliminary Experiments	M. ARIVANANDHAN, G. RAJESH, T. KOYAMA, Y. MOMOSE, K. SANKARANARAYANAN, A. TANAKA, Y. HAYAKAWA, T. OZAWA, Y. OKANO and Y. INATOMI • S46
Phase Selection in the Undercooled Melts of RMnO ₃ (R=rare earth) Using Containerless Solidification Technique	V. KUMAR, K. KURIBAYASHI, J. YU, M. KANEKO, T. ISHIKAWA and S. YODA • S51
Synthesis of Giant Magnetostrictive Iron-rich Sm-Fe Alloy by Unidirectional Solidification in Microgravity	T. OKUTANI, H. ONO and H. NAGAI • S57
Influence of Morphological Transition on Crystallization Process in Si	K. WATANABE, K. NAGAYAMA and K. KURIBAYASHI • S64
Entropy-Undercooling Regime Criterion for Metastable Phase Formation in Oxide Material	K. KURIBAYASHI and V. KUMAR • S68
Production of Homogeneous Cu ₂ ZnSnS ₄ by Splat Solidification	T. NAKAZAWA, H. NAGAI and T. OKUTANI • S72

Diamond Synthesis by a Graphite Rod Heating under Normal and High Gravity Environment	H. KAGEYAMA, S. HIRAI, Y. TAKAGI and Y. ABE	• S78
Forefront of High Gravity Science		
Observation of Settling Behavior of Particles in Slurry under Centrifugal Force	H. Y. SUZUKI	• S84
Isotope Distribution in Pure Indium after Liquid-State Centrifugation	M. ONO, S. OKAYASU, F. ESAKA, R. HARUKI and T. MASHIMO	• S89
Thermophysical Properties		
System Engineering Analysis and Optimization of a Parabolic Flight Experiment for Thermophysical Property Measurement under Microgravity	K. KAKIKURA, K. FUKAGATA and T. HIBIYA	• S92
Measurement of Thermophysical Properties for Materials Science and Technology		
Reduction of Convection in Diffusion Measurement using the Shear Cell by Stabilization of Density Layering on the Ground	S. SUZUKI, K-H. KRAATZ and G. FROHBERG	• S100
Heat and Fluid Flow in Microgravity		
The Measurement of Liquid Free Surface in Buoyant-Thermocapillary Convection by the Optical Grid Line Method	D. LI, K. QI	• S105
Thermal Control System for Space Experiment on Two-Phase Boiling Flow -I ; Analysis and Design of Condenser	R. IMAI, K. SUZUKI, H. KAWASAKI, C. HONG, H. ISHIZUKA, K. FUJII, Y. SHINMOTO and H. OHTA	• S109
Thermal Control System for Space Experiment on Two-Phase Boiling Flow -II ; Manufacture and Test of the Condenser	K. SUZUKI, R. IMAI, C. HONG, H. KAWASAKI, H. ISHIZUKA, K. FUJII, Y. SHINMOTO and H. OHTA	• S112
Bubble Behaviors in Quasi-steady Pool Boiling in Microgravity	J. LI, N. YAN and J-F. ZHAO	• S115
Investigation of Gas-Liquid Interface Behavior on Propellant Reorientation in Microgravity Environment	Z. LI, Q. LIU and R. LIU	• S120
3-D Flow Measurement of Oscillatory Thermocapillary Convection in Liquid Bridge in MEIS	T. YANO, K. NISHINO, H. KAWAMURA, I. UENO, S. MATSUMOTO, M. OHNISHI and S. YODA	• S126

Editorial Committee	M. Ishikawa (Tokyo Inst. of Tech.), Chairman	
	S. Adachi (JAXA)	K. Ijiri (Univ. of Tokyo)
	R. Imai (IHI)	I. Ueno (Tokyo Univ. of Science)
	M. Ohnishi (JAXA)	T. Okutani (Yokohama National Univ.)
	K. Kawazoe (IHI Aerospace)	T. Kawanishi (JAROS)
	K. Kinoshita (JAXA)	K. Kuribayashi (Shibaura Inst. of Tech.)
	A. Kurotani (JAXA)	K. Kogure (JSF)
	H. Tanaka (Conf. Sci. Inc.)	M. Tanabe (Nihon Univ.)
	K. Nishino (Yokohama National Univ.)	M. Watanabe (Gakushuin Univ.)

The Journal is published quarterly by **The Japan Society of Microgravity Application** (H. Ohta, President).
c/o WORDS Publishing House, 2-62-8-507 Higashi Ikebukuro, Toshina-ku, Tokyo 170-0013, Japan