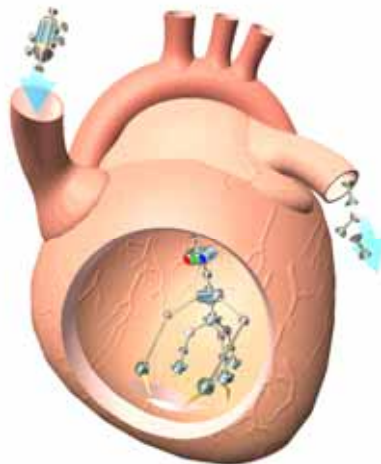




# MHS2005 Micro-Nano COE

**Advanced Program of the  
2005 International Symposium on  
Micro-NanoMechatronics and Human Science  
- From Micro & Nano Scale Systems to  
Robotics & Mechatronics Systems -  
The Eighth Symposium  
“Micro- and Nano-Mechatronics for Information-Based Society”  
The 21st Century COE Program, Nagoya University**

*Nagoya University  
November 7, 2005  
Nagoya Municipal Industrial Research Institute  
November 8-9, 2005*



Designed by Hitoshi Sakauchi

### **Cosponsored by**

City of Nagoya, Nagoya Urban Industries Promotion Corporation, Chubu Industrial Advancement Center, Nagoya University, Chubu Science and Technology Center, Kagawa University, The 21st Century Center of Excellence Program (Nagoya University) “Micro- and Nano-Mechatronics for Information-Based Society”, NPO (Humanwear Network Initiative), IEEE Robotics & Automation Society, International Symposium on Micro-NanoMechatronics and Human Science Committee

### **In Cooperation (tentative) with**

Japan Science and Technology Agency, Chubu Bureau of Economy, Trade and Industry, Aichi Prefecture, Nagoya Chamber of Commerce & Industry, Chubu Economic Federation, Central Japan Industries Association

### **Technically Cosponsored by**

The Japan Society of Mechanical Engineers, The Robotics Society of Japan, The Society of Instrument and Control Engineers, Micro/Nano System Research Committee of Japan Society for Precision Engineering, Micromachine Center, Federation of Micromachine Technology

# **MHS2005 & Micro-Nano COE Advanced Program (Tentative)**

November 7 (Mon)

Location: Nagoya University

- 13:00-15:00     *Laboratory Tour*     *Nagoya University*  
Please come to the Exit 3, Nagoya Daigaku Station (subway: Meijo Line) by 13:00.
- 13:30-16:30     *Tutorial*     *Venture Business Laboratory, Nagoya University*  
Introduction to MEMS: Technologies now and near future  
*Kazuo Sato, Nagoya University, Japan*  
\*Lecture will be given in Japanese.

November 8 (Tue)

Location: Nagoya Municipal Industrial Research Institute

**Opening Remarks**

9:00-9:15

**Conference Room 1**

*Toshio Fukuda, Nagoya University, Japan (General Co-Chair)*

*Yasunaga Mitsuya, Nagoya University, Japan (COE Project Leader)*

**Keynote Lecture**

Chairperson:

*K. Sato, Nagoya University*

9:15-10:15

**Conference Room 1**

CNT Based Nano Electro Mechanical Systems (NEMS)

*Prof. Dr. Christofer Hierold, ETH Zurich, Switzerland*

10:15-10:30

**Coffee Break**

**Poster Presentations**

Chairperson:

*S. Sugiyama, Ritsumeikan University*

*A. Sano, Nagoya Institute of Technology*

*F. Arai, Tohoku University*

**Exhibition Room (1st floor)**

10:30-12:30

The poster presentations are divided into two halves.

For those with **odd (uneven)** poster numbers, presentation will be between **10:30-11:30 (core time)**.

For those with **even** poster numbers, presentation will be between **11:30-12:30 (core time)**.

P-1

On-Wall In-Tube Inserted Thermal Flexible Micro Sensors for Measuring Mass-Flow

*Z.Y. Tan, M. Shikida, M. Hirota and K. Sato, Nagoya University, Japan*

P-2

Orientation of J-Aggregate Molecules in Langmuir Film and Langmuir-Blodgett Films of Merocyanine Dyes Mixed with Arachidic Acid and n-Octadecane and Irradiation Effect of Visible Light

*M. Kushida, Chiba University, Japan, Y. Imaizumi and H. Okumura*

P-3

Application of Pressure Sensitive Luminophores for Micro- and Nano-systems

*Y. Matsuda, H. Mori, T. Niimi, H. Uenishi and M. Hirako, Nagoya University, Japan*

P-4

Development of Free-Surface Microstereolithography with Ultra-High Resolution to Fabricate Hybrid 3-D Microdevices

*K. Kobayashi and K. Ikuta, Nagoya University, Japan*

P-5

Hydraulic Pressure Drive with Multi-degrees of Freedom Motion for Safety Active Catheter

*K. Ikuta, H. Ichikawa and D. Yajima, Nagoya University, Japan*

P-6

Grasp Stability Analysis of Two Objects with both Friction and Frictionless Contacts in Two Dimensions

*T. Yamada, Nagoya Institute of Technology, Japan, N. Mimura and Y. Funahashi*

- P-7  
Study on Respiration Monitoring Method Using Near-infrared Multiple Slit-lights Projection  
*H. Aoki, K. Koshiji, Tokyo University of Science, Japan, H. Nakamura, Y. Takemura and M. Nakajima*
- P-8  
Micro Image Matching with Grouped Features  
*W. Sun, T.C. Chin, Nanyang Technological University, Singapore and A. Shacklock*
- Micro-Nano COE Posters
- P9  
In-situ Formation of a Gel Microbead for Indirect Laser Micromanipulation of Microorganisms  
*Ichikawa, F. Arai and T. Fukuda, Nagoya University, Japan*
- P10  
A Challenge to the Frontier of Surgical Simulator - A Patient-Specific Vascular Model for Stress Evaluation -  
*A. S. Ikeda, F. Arai, T. Fukuda, Nagoya University, Japan, M. Negoro, K. Irie and I. Takahashi*
- P11  
Cell Culture Embedded in Biochemical IC Fabricated by Microstereolithography  
*Y. Inoue and K. Ikuta, Nagoya University, Japan*
- P12  
Microfabrication and Micromanipulation of Salting-out Gel Microtool for On-Chip Single Cell Manipulation  
*H. Maruyama, F. Arai and T. Fukuda, Nagoya University, Japan*
- P13  
Hydraulic Pressure Drive with Multi-degrees of Freedom Motion for Safety Active Catheter  
*D. Yajima, K. Ikuta, H. Ichikawa and K. Suzuki, Nagoya University, Japan*
- P14  
Adaptive Human Interface for Refreshing Sleep Based on Biological Rhythm  
*Y. Wakuda, T. Fukuda, F. Arai, Nagoya University, Japan, A. Noda, Y. Hasegawa, and M. Kawaguchi*
- P15  
High-Aspect-Ratio Nanofabrication Using Carbon Nanotube Probe in Scanning Tunneling Microscope  
*N. Arima, Nagoya University, Japan and A. Matsumuro*
- P16  
Fabrication of Polymer Membrane Microchannel by Membrane Micro Embossing (MeME)  
*M. Ikeuchi and K. Ikuta, Nagoya University, Japan*
- P17  
Self-assembled Giant Carbon Nanotube Construction Using Langmuir-Blodgett Films and CVD method  
*Y. Imaizumi, Nagoya University, Japan, M. Kushida, Y. Arakawa, F. Arai and T. Fukuda*
- P18  
Wet Etched Silicon Inserts for Injection Molding  
*M. A. Gosalvez, Nagoya University, Japan, J. Werkmeister, P. Willoughby, A. Slocum and K. Sato*

- P19  
Development of Free-Surface Microstereolithography with Ultra-High Resolution to Fabricate Hybrid 3-D Microdevices  
*K. Kobayashi and K. Ikuta, Nagoya University, Japan*
- P20  
Fabrication of Multiple Layered Flatcoil for Magnetic Actuator  
*Y. Hasegawa, M. Shikida and K. Sato, Nagoya University, Japan*
- P21  
Three-dimensional Microfabrication Process of Biodegradable Polymers  
*A. Yamada, F. Niikura and K. Ikuta, Nagoya University, Japan*
- P22  
Restoration of Degraded Moving Image for Abstracting a Moving Object  
*K. Akiyama, Nagoya University, Japan, Z. W. Luo, M. Onishi and S. Hosoe*
- P23  
Merging Control at Non-Signalized Intersection using Inter-vehicle Communication  
*Y. Ikemoto and T. Fukuda, Nagoya University, Japan*
- P24  
3D Biped Locomotion Based on the Inverted Pendulum Model with Two Degrees of Underactuation  
*M. Doi, T. Matsuno, Nagoya University, Japan, Y. Hasegawa and T. Fukuda*
- P25  
In situ Observation of Electrostatic Actuation of Telescoping Carbon Nanotubes inside Transmission Electron Microscope  
*M. Nakajima, F. Arai, S. Arai and T. Fukuda, Nagoya University, Japan*
- P26  
Reinforcement Learning for a Snake-Like Robot  
*S. Fukunaga, Nagoya University, Japan, Y. Nakamura and S. Ishii*
- P27  
Aircraft Conflict Resolution Method Using Cooperative Game and Mixed Integer Linear Programming  
*M. Yamaguchi and A. Umemura, Nagoya University, Japan*
- P28  
Electrostatic Lens Characterization with Nanorobotic Manipulator and Field Emission Microscope  
*P. Liu, F. Arai and T. Fukuda, Nagoya University, Japan*
- P29  
Viscosity Increase Due to Confinement of Mobile Molecules of Perfluoropolyethers Measured by Fiber Wobbling Method  
*S. Itoh, K. Fukuzawa, T. Ando, H. Zhang and Y. Mitsuya, Nagoya University, Japan*
- P30  
Molecular Dynamics Simulations for Analysis of Surface Morphology of Lubricant Films with Functional Endgroups  
*S. Ogata, Y. Mitsuya, H. Zhang and K. Fukuzawa, Nagoya University, Japan*
- P31  
A Novel Type of Mechanical Transmission System for Selective and High-output Drive of Densely-arrayed Systems  
*H. Sasaki, M. Shikida, and K. Sato, Nagoya University, Japan*
- P32  
On-Wall In-Tube Inserted Thermal Flexible Micro Sensors for Measuring Mass-Flow  
*T. Zhiyong, M. Shikida, M. Hirota and K. Sato, Nagoya University, Japan*

- P33  
The IGD and IGI Feature Based Method for Personal Recognition  
*Y. Nara, Nagoya University, Japan, J. Yang and Y. Suematsu*
- P34  
Fabrication and Characterization of AFM Probe Made of Crystal-quartz Tuning Fork Structure  
*H. Hida, M. Shikida, K. Fukuzawa, Nagoya University, Japan, A. Ono, K. Sato, K. Asaumi, Y. Iriye, D. Cheng and K. Sato*
- P35  
Friction and Adhesion Studies of PFPE Lubricants on Magnetic Disks under Slow Sliding and Lightly Loaded Conditions  
*Y. He, H. Zhang, Y. Mitsuya and K. Fukuzawa, Nagoya University, Japan*
- P36  
Piezoelectric Vibration-Type Tactile Sensor with Wide Measurement Range  
*K. Motoo, F. Arai, T. Fukuda and T. Matsuno, Nagoya University, Japan*
- P37  
LIF Measurements and Statistical Properties of Micro-Scale Diffusion Field of Matter in a Turbulent Jet  
*K. Uchida, Y. Sakai, T. Kubo and K. Nagata, Nagoya University, Japan*
- P38  
Spreading Dynamics of Ultra Thin Lubricant Films on Magnetic Disks by Monte Carlo Simulation  
*Y. Tagaya, Y. Mitsuya, S. Ogata, H. Zhang and K. Fukuzawa, Nagoya University, Japan*
- P39  
Experimental Analyses of Jet Structures around Clustered Linear-Type Aerospoke Nozzle using NO-LIF and PSP  
*M. Taniguchi, H. Mori, A. Fukushima and T. Niimi, Nagoya University, Japan*
- P40  
Application of Pressure Sensitive Luminophores for Micro- and Nano-systems  
*Y. Matsuda, H. Mori, T. Niimi, H. Uenishi and M. Hirako, Nagoya University, Japan*
- P41  
Numerical Simulation of Counterflow Premixed Flame  
(Arrangement of Flame Structure by Progress Variable and Its Gradient)  
*N. Hayashi, H. Yamashita, Nagoya University, Japan, Y. Nakamura and K. Yamamoto*
- P42  
Fundamental Study on Evaporative Cooling System of Centrifugal Compressor for Micro Gas-turbine System  
*J. Murata, Y. Hasegawa and S. Maekawa, Nagoya University, Japan*
- P43  
An Implicit Integration Scheme for a Nonisothermal Viscoplastic, Nonlinear Kinematic Hardening Model  
*M. Akamatsu and N. Ohno, Nagoya University, Japan*
- P44  
EBSD-AFM Hybrid Analysis on Crack Initiation Condition in Polycrystalline Metal under Cyclic Torsional Loading  
*Y. Wang, H. Kimura, Y. Akiniwa and K. Tanaka, Nagoya University, Japan*
- P45  
Influence of Matrix Yielding on Local Stress Concentrations near Loaded and Initial Fiber Breaks  
*S. Okabe and N. Ohno, Nagoya University, Japan*

P46 Crack-Shielding Effect on Fatigue Crack Propagation Behavior of Porous Ceramic  
*Y. Kita, K. Tanaka and Y. Akiniwa, Nagoya University, Japan*

P47 Temperature Effects on Fracture Behavior of Notched Silicon Film Specimen  
*S. Nakao, T. Ando, M. Shikida and K. Sato, Nagoya University, Japan*

P48 Molecular Dynamics Analysis for Micro Notch Effects of Single Crystal Silicon Thin Film  
*T. Fujii and Y. Akiniwa, Nagoya University, Japan*

P49 Finite Element Analysis of Deformation Behavior of Textured Thin Films  
*S. Machiya, Y. Akiniwa and K. Tanaka, Nagoya University, Japan*

12:30-13:30 **Lunch**

**Plenary Lecture**

**Conference Room 1**

Chairperson: *T. Fukuda, Nagoya University*

13:30-14:30

Innovative Actuators and Tools for Micro-Nano Mechatronics  
*Prof. Toshiro Higuchi, University of Tokyo, Japan*

14:30-14:45 **Coffee Break**

**Invited Talks**

**Conference Room 1**

Chairperson: *N. Kawahara, DENSO Corporation*

14:45-15:15

Open System Architecture for Robotics and Mechatronics with Modulated Components  
*Prof. Takeo Oomichi, Meijo University, Japan*

15:15-15:45

Trend of New Robot Research in R and A Lab of Nagoya Institute of Technology  
*Prof. Hideo Fujimoto, Nagoya Institute of Technology, Japan*

15:45-16:15

A Tactile-haptic Display System Using Micro-actuator Array  
*Prof. Dr. Masahiro Ohka, Nagoya University, Japan*

16:15-16:30 **Coffee Break**

**Invited Talks**

**Conference Room 1**

Chairperson: *H. Fujimoto, Nagoya Institute of Technology*

16:30-17:00

Division Method of Subjects by Individuality for Stratified Analysis of SD Evaluation Data  
*Prof. Takeshi Furuhashi, Nagoya University, Japan*

17:00-17:30

An Example of Open Robot Controller Architecture  
*Prof. Kyoichi Tatsuno, Meijo University, Japan*

17:30-18:00

Hyper-flexible Robotic Manipulators  
*Dr. Hiromi Mochiyama, Nagoya Institute of Technology, Japan*

18:00-19:00 **Reception Party** **Exhibition Room (1st floor)**

November 9 (Wed)  
Location: Nagoya Municipal Industrial Research Institute

**Technical Sessions**

**Session WAI-1: Robotics and Control**

**Conference Room 1**

Chairpersons: *K. Watanabe, Saga University*  
*H. Mochiyama, Nagoya Institute of Technology*

9:00-9:20 **Invited Paper**  
Soft Computing Approaches to Motion Control for Humanoid Robots  
*S. Kato and H. Itoh, Nagoya Institute of Technology, Japan*

9:20-9:40  
Computational Intelligence for A Wire-In-Hole Task in A  
Micromanipulation System  
*Z. Liu, PTC Japan, Japan, T. Nakamura and N. Kubota*

9:40-10:00  
Teaching a Tele-robot Using Natural Language Commands  
*C. Jayawardena, K. Watanabe and K. Izumi, Saga University, Japan*

10:00-10:20  
X-Cell: 3D Cellular Robotic System Utilizing Pivot Motion  
*M.-J. Jung, F. Arai and T. Fukuda, Nagoya University, Japan*

**Session WAI-2 (Organized Session): System Cell Engineering by Multiscale Manipulation 1**

**Conference Room 2**

Chairpersons: *K. Yoshikawa, Kyoto University*  
*S.H. Yoshimura, Kyoto University*

9:00-9:20  
Nanostructures via DNA Scaffold Metallization  
*N. Chen, A. Zinchenko, Kyoto University, Japan, D. Baigl, O. Pyshkina, V. Sergeyev, K. Endo and K. Yoshikawa*

9:20-9:40  
DNA-Nanospheres 3-D Assembling  
*A. Zinchenko, Kyoto University, Japan, D. Baigl and K. Yoshikawa*

9:40-10:00  
DNA Conformation and Transcriptional Properties : A Higher-order of Silence  
*F. Luckel, K. Kubo, Kyoto University, K. Tsumoto, A. Yamada and K. Yoshikawa*

10:00-10:20  
Giant Vesicle as a Simple Model of a Living Cell: Construction of Biochemical  
Microreactors  
*K. Tsumoto, Mie University, Japan, S. M. Nomura, T. Hamada, K. Kubo, T. Yoshimura and K. Yoshikawa*

10:20-10:40 **Coffee Break**



### **Technical Sessions**

#### **Session WA2-1: Micro-Nano Fabrication**

**Conference Room 1**

Chairperson: *K. Fukuzawa, Nagoya University*

10:40-11:00

A New Method to Machine Sculptured Surfaces by Applying Ultrasonic Elliptical Vibration Cutting

*E. Shamoto, N. Suzuki, R. Hino, E. Tsuchiya, Nagoya University, Japan, Y. Hori, H. Inagaki and K. Yoshino*

11:00-11:20

Fabrication and Characterization of AFM Probe with Crystal-quartz Tuning Fork Structure

*H. Hida, M. Shikida, K. Fukuzawa, Nagoya University, Japan, A. Ono, K. Sato, K. Asaumi, Y. Iriye, D. Cheng and K. Sato*

11:20-11:40

Design and Fabrication of Pyrolyzed Polymer Micro and Nano Structures

*K. Naka and S. Konishi, Ritsumeikan University, Japan*

11:40-12:00

Microfabrication and Characterization of Evolutionary MEMS Resonators

*R. Kamalian, Kyushu University, Japan, Y. Zhang and A.M. Agogino*

#### **Session WA2-2 (Organized Session): System Cell Engineering by Multiscale Manipulation 2**

**Conference Room 2**

Chairpersons: *T. Imanaka, Kyoto University*

*O. Mazda, Kyoto Prefectural University of Medicine*

10:40-11:00

Autonomous Motion of Droplet Powered by Chemical Potential and by Photon-flux

*H. Kitahata, Y. Sumino, K. Nagai and K. Yoshikawa, Kyoto University, Japan*

11:00-11:20

Fast-scanning AFM is Now Applicable to the Analyses of Single-molecule Reactions in Nano-biophysics

*M. Yokokawa, K. Takeyasu and S.H. Yoshimura, Kyoto University, Japan*

11:20-11:40

Complete Genome Analysis and Development of Gene Disruption Technology in the Hyperthermophilic Archaeon, *Thermococcus Kodakaraensis*

*T. Imanaka, T. Fukui, T. Sato, H. Imanaka, R. Matsumi and H. Atomi, Kyoto University, Japan*

11:40-12:00

Application of EBV-based Artificial Chromosome to Genetic Engineering of Mammalian Cells and Tissues

*T. Kishida, M. Shin-Ya, J. Imanishi and O. Mazda, Kyoto Prefectural University of Medicine, Japan*

12:00-13:00

**Lunch**

### **Technical Sessions**

#### **Session WPI-1: Micro Actuators and Micro Components**

**Conference Room 1**

Chairperson: *A. Torii, Aichi Institute of Technology*

13:00-13:20

Fabrication of All PDMS Micro Pump

*O.C. Jeong and S. Konishi, Ritsumeikan University, Japan*

13:20-13:40

Pneumatic Micro Finger as Endeffector of Robot

*O.C. Jeong, S. Kusuda, T. Sakakibara, S. Konishi and M. Nokata, Ritsumeikan University, Japan*

13:40-14:00

A Si Micro Conveyer System Based on Electrostatic Comb-Drive Actuators

*P.H. Pham, D.V. Dao, Ritsumeikan University, Japan, S. Amaya, R. Kitada, S. Li and S. Sugiyama*

**Session WPI-2 (Organized Session): *System Cell Engineering by Multiscale Manipulation 3***  
**Conference Room 2**

Chairpersons:

*A. Ishihama, Hosei University*

*M. Kataoka, The University of Tokushima*

13:00-13:20

Principles and Possible Applications of *in vitro* Protein Synthesis

*M. Kataoka and Y. Shinohara, The University of Tokushima, Japan*

13:20-13:40

Self-assembled Giant Carbon Nanotube Construction Using Langmuir-Blodgett Films and CVD Method

*Y. Imaizumi, Nagoya University, Japan, M. Kushida, Y. Arakawa, F. Arai and T. Fukuda*

13:40-14:00

Transcription Factor-Promoter Interaction Networks

*A. Ishihama, Hosei University, Nippon Institute for Biological Science, Japan, T. Shimada, H. Ogasawara, J. Teramoto and K. Yamamoto*

14:00-14:20

Control of Influenza Virus Growth by Cellular Proteins

*A. Honda, Hosei University, Japan*

14:20-14:40

**Coffee Break**

**Technical Sessions**

**Session WP2-1: *Measurement Method and Devices***

**Conference Room 1**

Chairperson:

*Y. Akiyama, Nagoya University*

14:40-15:00

Position Measurement System for a Microsystem

*T. Inoue, A. Torii, K. Doki and A. Ueda, Aichi Institute of Technology, Japan*

15:00-15:20

Optimization and Characterizations of the Dual Axis Gas Gyroscope

*D.V. Dao, V.T. Dau, Ritsumeikan University, Japan, T. Shiozawa, H. Kumagai and S. Sugiyama*

15:20-15:40

Ellipsometric Microscope: Novel Method for Direct Visualization of Molecularly Thin Liquid Films

*K. Fukuzawa, Nagoya University, JST-PRESTO, Japan, T. Shimuta, H. Zhang and Y. Mitsuya*

15:40-16:00

High-Aspect-Ratio Nanofabrication Using Carbon Nanotube Probe in Scanning Tunneling Microscope

*N. Arima, Nagoya University, Japan and A. Matsumuro*

**Session WP2-2 (Organized Session): System Cell Engineering by Multiscale Manipulation 4**  
**Conference Room 2**

Chairpersons: T. Matsuda, Kyushu University  
A. Ishijima, Nagoya University

14:40-15:00

The Relationship of Torque–Speed on the Na<sup>+</sup>-driven Flagellar Motor  
A. Ishijima, Y. Sowa and M. Homma, Nagoya University, Japan

15:00-15:20

Dexterous Micromanipulation Supporting Cell and Tissue Engineering  
K. Inoue, T. Arai, Osaka University, Japan, T. Tanikawa and K. Ohba

15:20-15:40

Mechanobiology of Cell and Tissue Engineering and Multi-Scaled Process Engineering  
T. Matsuda and S. Kidoaki, Kyushu University, Japan

15:40-16:00

In Vitro Patient-Specific Model of Cerebral Artery for Evaluating  
Procedures of Endovascular Intervention  
S. Ikeda, F. Arai, T. Fukuda, Nagoya University, Japan, M. Negoro, K. Irie and  
I. Takahashi

16:00-16:20

**Coffee Break**

**Technical Sessions**

**Session WP3-1: Analysis and Evaluation of Micro-Nano Systems** **Conference Room 1**

Chairperson: N. Umehara, Nagoya University

16:20-16:40

Friction Control between CNx Coating and Stainless Steel Ball with Electric Field  
N. Umehara, Nagoya University, Japan and T. Yamamoto

16:40-17:00

Temperature Effects on Fracture Behavior of Notched Silicon Film Specimen  
S. Nakao, T. Ando, M. Shikida and K. Sato, Nagoya University, Japan

17:00-17:20

EBSD-AFM Hybrid Analysis of Fatigue Slip System and Crack Initiation in  
Polycrystalline Metal under Cyclic Torsional Loading  
Y. Wang, H. Kimura, Y. Akiniwa and K. Tanaka, Nagoya University, Japan

17:20-17:40

Molecular Dynamics Analysis for Micro Notch Effects of Single Crystal Silicon Thin Film  
T. Fujii and Y. Akiniwa, Nagoya University, Japan

**Session WP3-2 (Organized Session): System Cell Engineering by Multiscale Manipulation 5**  
**Conference Room 2**

Chairpersons: K. Yamamoto, University of Tokyo  
O. Suzuki, Tohoku University

16:20-16:40

Effects of Mechanical Stress and Scaffold Material on Osteogenesis and  
Chondrogenesis  
O. Suzuki, I. Takahashi, S. Kamakura, K. Sasaki, Tohoku University, Japan,  
R. Kamijo, M. Nakamura, M. Oda, T. Uchida, F. Arai and T. Fukuda

16:40-17:00

Shear Stress-Mediated Differentiation of Vascular Progenitors  
K. Yamamoto, S. Obi, N. Shimizu and J. Ando, University of Tokyo, Japan

17:00-17:20

Application of Soft Lithography to Mechanobiology  
*K. Naruse, Okayama University, Japan*

17:20-17:40

Nanotechnology-Based Cell Sheet Engineering for Regenerative Medicine  
*M. Yamato, Tokyo Women's Medical University, Japan*

18:00-19:00

***Award Ceremony and Farewell Party***

***Exhibition Room (1st floor)***