9:00 – 10:30

SYMPOSIUM S24: Cell mechanics and cell mechanobiology

Chairs: **Toshiro Ohashi, Taiji Adachi, Susumu Kudo**

S24-1 Identification of leader cells in cell migration by filopodia using computer vision
***Baasansuren Otgon[1], Ganbat Danaa[2], Toshiro Ohashi[3]**
[1]Graduate School of Engineering, Hokkaido University, Japan, [2]Open Education Center, Mongolian University of Science and Technology, Mongolia, [3]Faculty of Engineering, Hokkaido University, Japan

S24-2 Intracellular tension of osteoblast in collagen gel elicits osteocyte alignment under uniaxially-fixed boundary condition
***Jeonghyun Kim[1], Keiichi Ishikawa[2], Junko Sunaga[2], Taiji Adachi[2]**
[1]Nagoya University, [2]Kyoto University

S24-3 Emulating endothelial dysfunction by mimicking the microenvironment of early atherosclerotic lesions within a microfluidic chip
***Bomi Gweon[1], Yujin Shin[2]**
[1]Sejong University, [2]Hanyang University

S24-4 Enhancement and Stabilization of Sprouting Angiogenesis by Curvature-Oriented Behaviors of Mesenchymal Stem Cells
***Takanori Sano[1], Jun-Ichi Kawabe[2], Yukiko T. Matsunaga[1]**
[1]Institute of Industrial Science, The University of Tokyo , [2]Asahikawa Medical University

S24-5 Mechanism driving hydrostatic pressure-induced endothelial tube formation
***Daisuke Yoshino**
Tokyo University of Agriculture and Technology

SYMPOSIUM S25: Microparticle and cell behavior in confined fluid flows - 1

Chairs: **Masako Sugihara-Seki, Naoki Takeishi, Ryoko Otomo**

S25-1 Numerical analysis of the inertial migration of the red blood cell in a channel
***Naoki Takeishi[1], Hiroshi Yamashita[1,2], Naoto Yokoyama[3], Seki Masako[1,2], Shigeo Wada[1]**
[1]Osaka University, [2]Kansai University, [3]Tokyo Denki University

S25-2 Droplet breakup limits in simple shear flows
***Mohamed Shoieb Abdelgawad, Marco Edoardo Rosti**
Okinawa Institute of Science and Technology

S25-3 Swelling and hemolytic behavior of human red blood cells in hypotonic fluid
***Ryoko Otomo, Ryuta Minami, Kiyoshi Bando**
Kansai University

S25-4 Spectral change of stress-responsive fluorescent molecule caused by the hydrodynamic stress field of microchannel flow
***Reiko Kuriyama[1], Waka Yamamoto[1], Hidetsugu Kitakado[2], Shohei Saito[2], Kazuya Tatsumi[1], Kazuyoshi Nakabe[1]**
[1]Department of Mechanical Engineering and Science, Kyoto University, [2]Graduate School of Science, Kyoto University

S25-5 Segregation in shear-thickening materials
***Alessandro Monti, Marco Edoardo Rosti**
Okinawa Institute of Science and Technology (OIST)

SYMPOSIUM S26: Contributing Role of Erythrocytes for Platelet Adhesion and Thrombus Formation

Chairs: **Shinya Goto**

S26-1 Important Physical Regulatory Roles of Erythrocytes on Platelet Adhesion Under Blood Flow Conditions.
***Noriko Tamura[1,2], Kazuya Shimizu[3], Seiji Shiozaki[2], Kazuyasu Sugiyama[4], Masamitsu Nakayama[2], Shinichi Goto[2], Shu Takagi[3], Shinya Goto[2]**
[1]Department of Health and Nutrition, Niigata University of Health and Welfare, [2]Department of Medicine (Cardiology), Research Center for Metabolic Disease, Tokai University School of Medicine and Tokai University Graduate School of Medicine, [3]Graduate School of Engineering, The University of Tokyo, [4]Department of Mechanical Science and Bioengineering, Osaka University School of Engineering Science

S26-2 Physical interaction between platelet and erythrocytes plays important role for initial platelet adhesion mediated by the interaction of glycoprotein 1b with von Willebrand factor.
***Shinichi Goto[1,2,3], Noriko Tamura[4], Kazuya Shimizu[5], Masamitsu Nakayama[3], Shu Takagi[5], Shinya Goto[3]**
[1]Brigham and Women's Hospital, Harvard Medical School, [2]Keio University School of Medicine, [3]Tokai University School of Medicine, [4]Niigata University of Health and Welfare, [5]The University of Tokyo

S26-3 Water-Ethanol Separation with Tip Charged Carbon Nanotubes
***Yuui Ono, Eiji Yamamoto, Kenji Yasuoka**
Keio University

S26-4 Numerical Study on the Platelet Margination in a Capillary Vessel
Dongig Oh, Shu Takagi
The University of Tokyo

10:40 –12:10

SYMPOSIUM S27: Microparticle and cell behavior in confined fluid flows - 2

Chairs: **Masako Sugihara-Seki, Naoki Takeishi, Ryoko Otomo**

S27-1 Inertial focusing of red blood cells suspended in blood plasma flowing through square tubes
***Masako Sugihara-Seki[1,2], Saori Tanaka[1]**
[1]Kansai University, [2]Osaka University

S27-2 Role of fluid dynamics in optical trapping
***Tetsuro Tsuji**
Kyoto University

S27-3 Deformable particle suspensions
***Marco Edoardo Rosti**
Okinawa Institute of Science and Technology

S27-4 On-chip manipulation for revealing novel aspects of red blood cell mechanics
***Hiroaki Ito**
Chiba University

S27-5 Measurement of near-wall microparticles motion under the influence of radiation pressure of evanescent field
***Miyu Inoue, Reiko Kuriyama, Kazuya Tatsumi, Kazuyoshi Nakabe**
Kyoto University

SYMPOSIUM S28: Joint Symposium with Commons for Medicine and Engineering Japan: Application of High Performance Computer for Biorheology.

Chairs: **Shinya Goto, Kazuo Tanishita**

S28-1 Protein disintegration as a possible mode of protein dissociation between GP1bα and VWF in blood flow condition: insights from steered molecular dynamic simulation.
***Shinichi Goto[1,2,3], Masamitsu Nakayama[2], Shu Takagi[4], Shinya Goto[2]**
[1]Brigham and Women's Hospital, Harvard Medical School, [2]Tokai University School of Medicine, [3]Keio University School of Medicine, [4]Graduate School of Engineering, The University of Tokyo

S28-2 Salt Bridge Formation Between A1 Domain of von Willebrand Factor and Platelet Glycoprotein (GP) Ibα by Molecular Dynamics Simulations
***Masamitsu Nakayama, Shinichi Goto, Shinya Goto**
Tokai University School of Medicine

S28-3 Finite element analysis of blood clots through visco-hyperelastic constitutive theories
***Koichiro Tashiro[1,2], Yasuhiro Shobayashi[2], Iku Ota1, Atsushi Hotta[1]**
[1]Department of Mechanical Engineering, Keio University, [2]Biomedical Solutions Inc.

S28-4 Newly developed drug-eluting stent (DES) system for cardiovascular diseases: Hybrid nano-coating technology
***Terumitsu Hasebe[1,2], Shunto Maegawa[1,3], Kenta Bito[1,3], Yutaka Okamoto[3], Shunsuke Kamei[1], Shota Yamamoto[1,3], Kosuke Tomita[1], Satoshi Suda[1], Kazunobu Hashida[1], Tomohiro Matsumoto[1], Yoko Usami[4,1], Yasutaka Baba[4,1], Yutaka Imai[1], Atsushi Hotta[3]**
[1]. Tokai University Hachioji Hospital, Tokai University School of Medicine, [2]Keio University Hospital Clinical & Translational Research Center, [3]Keio University Faculty of Science and Technology, [4]Saitama Medical University International Medical Center

12:10-13:10

Plenary Lecture in Tribute to Prof. Akira Kamiya

Chair: **Joji Ando**

Emerging roles of membrane lipids and mitochondria in endothelial cell mechanosensing
Kimiko Yamamoto
The University of Tokyo

14:00 - 15:00

Closing Plenary Lecture for ISB

Chair: **Peter Butler**

The mechanotransduction of cancer and blood cells exposed to circulatory levels of fluid shear stress
Michael R. King
Vanderbilt University

15:00 - 15:50

Closing Ceremony