

## Program of JSST2022

### Wednesday, 31 August

Opening Ceremony

9:45–10:00, Hall A

Plenary Talk 1 (Numerical Simulation and Visual Analytics of Nonlinear Problems)

10:00–11:00, Hall A

Chair: Soichiro Ikuno (Tokyo University of Technology)

(Plenary) Smart Supercomputing by Integration of Simulation, Data, and Learning,  
*Prof. Toshihiro Hanawa (The University of Tokyo)*

11:00–11:15 Group Photo

Symposium 1 on Numerical Simulation and Visual Analytics of Nonlinear Problems

Session 01, Invited and Tutorial Talks, 11:15–12:15, Hall A

Chair: Satoshi Tanaka (Ritsumeikan University)

1. (Invited) Multi-scale and -physics particle simulations for natural hazard,  
*Prof. Mitsuteru Asai (Kyushu University)*
2. (Tutorial) VisAssets: A Visualization Framework for Unity,  
*Dr. Shintaro Kawahara (Japan Agency for Marine-Earth Science and Technology)*

OS6: Design and Simulations for System Integration

Session 06, 11:15–12:35, Hall C

Chair: Shunsuke Nansai (Tokyo Denki University)

1. Control of a contractible and bendable wire-pulling mechanism for a robotic tongue,  
*Amane Sakota, Nobutsuna Endo and Norihiro Kamamichi*
2. Toolpath Planning for Simultaneous Fabrication with Multi-Nozzle in Material Extrusion-based Additive Manufacturing,  
*Koki Jimbo*
3. An Elbow Joint Angle prediction method using a NN considering EMD with FE processed sEMG as inputs,  
*Naoki Ikeda and Teruyoshi Sadahiro*
4. Intelligent Snake-like Robot for Cable Laying Work,  
*Jyunta Takarabe, Yuuki Sadasue, Hayato Nagae, Yasuyuki Satoh and Masami Iwase*

OS7: Plasma, Materials, Fusion Science, and their AI applications

Session 09, 11:15–12:15, Hall D

Chair: Seiki Saito (Yamagata University)

1. Development of hydrogen recycling model by machine learning based on molecular dynamics

simulation,

*Masato Iida, Seiki Saito, Hiroaki Nakamura, Keiji Sawada, Kazuo Hoshino, Masahiro Kobayashi and Masahiro Hasuo*

2. A computational fluid simulation study of the free-surface flow of the liquid lithium target of Advanced Fusion Neutron Source A-FNS,  
*Makoto M. Nakamura, Masami Ikeda, Takashi Ebisawa, Kai Masuda, Makoto Oyaidzu and Satoshi Sato*
3. Estimation of Cs layer on plasma grid in ITER scale negative ion source,  
*Masafumi Yoshida, Shunsuke Hayashi and Yoichi Sato*

12:35–13:30 Lunch Break

13:30–14:15 Corporate Seminar 1 (in Japanese)

Hall A

CAE and Data Science (Insight Operations)

*Akio Miyoshi (Insight, Inc.)*

Hall B

Latest and Next Generation for Many Core Simulation and Deep Learning GPU Server

*Yoshihiro Okuyama (HPCTECH Corpotaion)*

14:15–14:30 Break

Plenary Talk 3 (Advanced Numerical Analysis and Software in Multiphysics and Coupled Problems)

14:30–15:30, Hall A

Chair: Daisuke Ishihara (Kyushu Institute of Technology)

(Plenary) Super-simulations of Offshore Wind Farm on Fugaku,

*Prof. Shinobu Yoshimura (The University of Tokyo)*

15:30–15:45 Break

Symposium 1 on Numerical Simulation and Visual Analytics of Nonlinear Problems

Session 02, 15:45–16:45, Hall A

Chair: Ran Dong (Tokyo University of Technology)

1. Application of Physics-informed Neural Network Surrogate Model on Linear Elasticity Problem,  
*Jiarui Ou and Koji Koyamada*
2. Improving the accuracy of Homography Matrix Estimation using Deep Learning for disturbed Images,  
*Mikichika Yokono and Hiroyuki Kamata*
3. Page extraction from sealed historical manuscripts by using physics-informed neural network,  
*Zhongjiang Han and Koji Koyamada*

OS8: Numerical Harmonic Analysis and Signal Processing

Session 04, 15:45–16:45, Hall B

Chair: Kensuke Fujinoki (Kanagawa University)

1. Improvement of arrhythmias distinction accuracy using suitable combination of features of the Electrocardiograms,  
*Md Masudur Rahman, Sergio Albeverio, Toshinao Kagawa, Shuji Kawasaki, Takayuki Okai, Hidetoshi Oya, Yumi Yahagi and Minoru W. Yoshida*
2. Asymptotic analysis for solutions to the generalized Fornberg–Whitham equation with dissipation,  
*Ikki Fukuda*
3. The Characterization of the Gyration Transform by way of the Fractional Fourier Transform,  
*Toshinao Kagawa and Toshio Suzuki*

OS2: Verified Numerical Computations

Session 07, 15:45–16:45, Hall C

Chair: Katsuhisa Ozaki (Shibaura Institute of Technology) and  
Kazuaki Tanaka (Waseda University)

1. Rigorous simulation of reaction-diffusion models with neural networks,  
*Kazuaki Tanaka, Kohey Yatabe, Taisei Asai and Sora Sawai*
2. Test floating-point matrices with specified solutions for numerical linear algebra,  
*Katsuhisa Ozaki, Takeshi Terao and Yuki Uchino*
3. Inclusion Methods for Multiplication of Three Point Matrices,  
*Yuki Uchino, Katsuhisa Ozaki and Takeshi Terao*

OS7: Plasma, Materials, Fusion Science, and their AI applications

Session 10, 15:45–16:45, Hall D

Chair: Ryosuke Ueda (Tohoku University)

1. Weight Parameter Estimation from compressed data on Boltzmann machines via  $L_2$ -norm minimisation,  
*Chako Takahashi*
2. Image processing for analyzing the number of DNA breaks using deep learning,  
*Seiki Saito, Ayumi Kobashi, Hiroaki Nakamura, Takahiro Kenmotsu, Yasuhisa Oya and Yuji Hatano*
3. Evaluation of Tritium substitution probabilities For investigation of tritium resistance of DNA,  
*Yohei Tsuchida, Seiki Saito, Hiroaki Nakamura and Yoshiteru Yonetani*

OS4: Computational Electromagnetics and Its Applications

Session 12, 15:45–16:45, Hall E

Chair: Hideki Kawaguchi (Muroran Institute of Technology)

1. Incidence angle dependence of excitation modes in corrugated waveguides,  
*Yoshihisa Fujita, Hiroaki Nakamura, Hideki Kawaguchi, Shin Kubo, Yuki Goto and Soichiro Ikuno*
2. Boundary Element Analysis of Surface Roughness Wake Field in an Accelerator Beam Pipe,  
*Kazuhiro Fujita*

3. Time structure of the undulator radiation,  
*Elham Salehi, Masahito Hosaka and Masahiro Katoh*

16:45–17:00 Break

Symposium 1 on Numerical Simulation and Visual Analytics of Nonlinear Problems

Session 03, 17:00–17:40, Hall A

Chair: Teruo Takayama (Yamagata University)

1. Molecular dynamics simulation of water dynamics in zwitterionic polymer brush-water interface,  
*Susumu Fujiwara, Yuya Fujinaga and Tomoko Mizuguchi*
2. Shape Modeling of Metal Foam Based on Implicit Surfaces Generated from Deformed Polyhedra,  
*Naoki Hamano, Taku Itoh, Kohei Tateyama, Susumu Nakata and Keiko Watanabe*

OS8: Numerical Harmonic Analysis and Signal Processing

Session 05, 17:00–17:40, Hall B

Chair: Toshio Suzuki (Tokyo University of Science)

1. Improvement of wavelet-synchrosqueezing transform with time shifted angular frequency,  
*Takashi Matsubara, Akira Kakutani, Keisuke Iwai and Takakazu Kurokawa*
2. Image denoising using directional wavelet-based approaches,  
*Kensuke Fujinoki*

OS2: Verified Numerical Computations

Session 08, 17:00–17:40, Hall C

Chair: Kazuaki Tanaka (Waseda University)

1. A mixed-precision algorithm of the CG method using the group-wise update strategy,  
*Kensuke Aihara, Katsuhisa Ozaki and Daichi Mukunoki*
2. Numerical experiments for Verified numerical computations for linear systems,  
*Tomoki Aoyama and Katsuhisa Ozaki*

OS7: Plasma, Materials, Fusion Science, and their AI applications

Session 11, 17:00–18:00, Hall D

Chair: Makoto Nakamura (National Institute of Technology, Kushiro College)

1. Molecular Dynamics Simulation on Hydrogen Trapping on Tungsten Vacancy,  
*Hiroaki Nakamura, Kazuki Takasan, Miyuki Yajima and Seiki Saito*
2. Investigation of hydrogen recycling on tungsten divertor by molecular dynamics simulation,  
*Yuki Kojima, Seiki Saito, Hiroaki Nakamura, Keiji Sawada, Kazuo Hoshino, Masahiro Kobayashi and Masahiro Hano*
3. Full-torus simulation of the tungsten transport in the closed helical divertor region in the Large Helical Device using the three-dimensional plasma-wall interaction simulation code ERO2.0,  
*Mamoru Shoji, Gakushi Kawamura, Juri Romazanov, Andreas Kirschner, Suguru Masuzaki, Gen Motojima, Masahiro Kobayashi, Masayuki Tokitani and Sebastijan Brezinsek*

OS4: Computational Electromagnetics and Its Applications

Session 13, 17:00–18:00, Hall E

Chair: Yoshihisa Fujita (Ritsumeikan University)

1. High-Frequency Electromagnetic Field Analysis in Microwave Oven by Parallel Finite Element Method,  
*Kento Ohnaka and Amane Takei*
2. 3D magnetostatic FIT analysis of rotating magnetic field generator for orientation control of diamagnetic materials,  
*Shuta Yanai, Yuka Takeuchi, Atom Hamasaki and Hideki Kawaguchi*
3. FE Analysis of Numerical Human Body Model with 100 Million DOFs in Electromagnetic Field – Heat Conduction Coupled Problem,  
*Shin-ichiro Sugimoto, Amane Takei and Masao Ogino*

[Thursday, 1 September](#)

Symposium 1 on Numerical Simulation and Visual Analytics of Nonlinear Problems

Session 14, 9:00–10:00, Hall A

Chair: Soichiro Ikuno (Tokyo University of Technology)

1. Optical Vortex Analysis Using Empirical Mode Decomposition,  
*Ran Dong, Yoshihisa Fujita, Hiroaki Nakamura, Hideki Kawaguchi and Soichiro Ikuno*
2. A Design of Smart Glasses-based Gesture Recognition and Translation System for Sign Languages,  
*Chu Zhang, Bo Wu and Kiminori Sato*
3. Numerical Approach to Enhanced-Performance of Superconducting Linear Accelerator Using Multiple-Electromagnets,  
*Teruou Takayama, Ayumu Saitoh and Atsushi Kamitani*

Symposium 2 on Advanced Concept and Methodology in Bioscience

Session 17, 9:00–10:00, Hall B

Chair: Susumu Fujiwara (Kyoto Institute of Technology)

1. Atomistic analysis of strand breaks of DNA in tritiated water using Geant4-DNA simulation,  
*Tsukasa Aso, Masahara Hara, Yoshiyuki Hirano, Yoshiteru Yonetani and Susumu Fujiwara*
2. Evaluation tolerance of DNA damaged by tritium beta decay using MD simulation,  
*Kento Ishiguro, Hiroaki Nakamura, Shunsuke Usami, Susumu Fujiwara and Seiki Saito*
3. Protective behavior of various types of tea catechins on DNA double strand breaks by radiations,  
*Yasuhisa Oya, Shiori Hirata, Takahiro Kenmotsu, Yuji Hatano, Takashi Ikka, Takanori Oyoshi, Toshinobu Tokumoto, Kazutaka Hirakawa and Seiki Saito*

Symposium 3 on Advanced Numerical Analysis and Software in Multiphysics and Coupled Problems

Session 20, Invited and Tutorial Talks, 9:00–10:00, Hall C

Chair: Amane Takei (University of Miyazaki)

1. (Invited) Finite element analysis of multilayered flexible piezoelectric energy harvesting devices using strongly coupled structure-piezoelectric-circuit interaction,  
*Dr. Prakasha Chigahalli Ramegowda (Institute of Microelectronics / Sensors, Actuators & Microsystems, Agency for Science, Technology and Research)*
2. (Tutorial) Fusion of CAE and 3D Metrology,  
*Dr. Hiroshi Watanabe (Hexagon Manufacturing Intelligence)*

OS7: Plasma, Materials, Fusion Science, and their AI applications

Session 23, 9:00–10:00, Hall D

Chair: Shunsuke Usami (National Institute for Fusion Science)

1. Quantum algorithm for the Vlasov simulation of neutral gas,  
*Kiichiro Toyozumi and Kazuo Hoshino*
2. A method to distinguish different material in Euler fluid dynamics for fuel pellet implosion analysis in

inertial confinement fusion,

*Zhehao Lin, Kazumasa Takahashi, Toru Sasaki and Takashi Kikuchi*

3. Characteristics of a limit-cycle oscillation observed in plasma fluid simulations of the GAMMA 10/PDX tandem mirror,

*Satoshi Togo, Kosuke Takanashi, Tomonori Takizuka, Naomichi Ezumi, Mizuki Sakamoto, Kenzo Ibane, Yuki Homma, Mafumi Hirata, Yousuke Nakashima and Keishi Honma*

#### OS4: Computational Electromagnetics and Its Applications

Session 26, 9:00–10:00, Hall E

Chair: Hajime Igarashi (Hokkaido University)

1. Numerical Method of Applying Shadow Theory to Scattering Fields by a Multiple Plane Grating,  
*Hideaki Wakabayashi, Masamitsu Asai and Jiro Yamakita*
2. Topology Optimization of Motor Stator to Reduce Vibration,  
*Hiroto Otsuki, Kota Watanabe and Takahiro Sato*
3. On the Rectangular Skew Layout of Helices for a Quasi-Isotropic Chiral Particle,  
*Masamitsu Asai, Hideaki Wakabayashi and Jiro Yamakita*

10:00–10:15 Break

#### Symposium 1 on Numerical Simulation and Visual Analytics of Nonlinear Problems

Session 15, 10:15–11:15, Hall A

Chair: Taku Itoh (Nihon University)

1. Feature Emphasis Visualization of 3D Measured Point Clouds by Proliferation using PCA,  
*Takuto Sasano, Kyoko Hasegawa, Liang Li and Satoshi Tanaka*
2. Edge-Highlighting Visualization of 3D Scanned Point Cloud based on Adaptive Opacity Control,  
*Takuto Nakayama, Kyoko Hasegawa, Liang Li and Satoshi Tanaka*
3. High-Definition Contour Drawing for 3D Point-based Surfaces based on Adaptive Point Density Adjustment,  
*Yukihiro Inada, Hiroki Ito, Yousei Takeuchi, Kyoko Hasegawa, Liang Li and Satoshi Tanaka*

#### Symposium 2 on Advanced Concept and Methodology in Bioscience

Session 18, 10:15–10:55, Hall B

Chair: Takahiro Kenmotsu (Doshisha University)

1. Computational performance evaluation of a new omnidirectional radiation imaging system using a fractal-shaped radiation detector,  
*Miyuki Sasaki, Yukihiro Sanada, Tatsuo Torii, Masao Yoshino and Akira Yoshikawa*
2. Location estimation of radiation source using NaI spectrometer,  
*Katsuhiko Yamaguchi, Sota Suga, Yuka Kumada, Yuto Kondo, Kenji Suzuki and Masaharu Matsumoto*

#### Symposium 3 on Advanced Numerical Analysis and Software in Multiphysics and Coupled Problems

Session 21, 10:15–11:15, Hall C

Chair: Tomohiro Sawada (National Institute of Advanced Industrial Science and Technology)

1. Coupled simulation of fluid and visco-hyperelastic solid with Eulerian unified formulation,  
*Shusuke Takeuchi, Koji Nishiguchi, Tokimasa Shimada, Ryohei Katsumata, Hiroya Hoshiba and Junji Kato*
2. Effect of wing's mass distribution on the aerodynamic performance in insect flapping wings,  
*Minato Onishi and Daisuke Ishihara*
3. Partitioned-Monolithic Hybrid Strongly Coupled Method for Structure-Piezoelectric-Circuit Interaction in Piezoelectric Energy Harvesting,  
*Shunnosuke Nozaki, Daisuke Ishihara and Tomoya Niho*

OS5: Multi Dimensional Communication Networks

Session 24, 10:15–11:15, Hall D

Chair: Kenichi Ito (Niigata Institute of Technology)

1. A study on information floating in a one-dimensional street considering effects of shadowing and side trips of pedestrians,  
*Naoyuki Karasawa, Kazuyuki Miyakita, Takuma Kobayashi, Hiroshi Tamura and Keisuke Nakano*
2. A Consideration on Mobility Models for Evaluation of Delay Tolerant Networks in Road Networks,  
*Kazuyuki Miyakita, Hiroshi Tamura and Keisuke Nakano*
3. Distance Coloring and Grundy Number of Graphs,  
*Hiroshi Tamura and Keisuke Nakano*

OS4: Computational Electromagnetics and Its Applications

Session 27, 10:15–10:55, Hall E

Chair: Kota Watanabe (Muroran Institute of Technology)

1. Equivalent Circuit for Wireless Power Transfer Considering Eddy and Displacement Currents,  
*Qiao Liu and Hajime Igarashi*
2. Conceptual design of dataflow machine for 2-D eddy current fields simulations,  
*Chenxu Wang and Hideki Kawaguchi*

11:15–11:30 Break

Symposium 1 on Numerical Simulation and Visual Analytics of Nonlinear Problems

Session 16, 11:30–12:10, Hall A

Chair: Ayumu Saitoh (Yamagata University)

1. Implementation of a hierarchical parallel solver for saddle point problems on a GPU cluster,  
*Hiroto Tadano*
2. Improved Variable-Reduction Method for Asymmetric Saddle-Point Problem,  
*Atsushi Kamitani and Teruou Takayama*



Symposium 2 on Advanced Concept and Methodology in Bioscience

Session 19, 11:30–12:30, Hall B

Chair: Susumu Fujiwara (Kyoto Institute of Technology)

1. Medical – Engineering collaboration for big data analysis and numerical modeling,  
*Yoshihide Shibata*
2. The incidence reduction of Kawasaki disease before and after the COVID-19 pandemic onset by using data analysis technics in engineering,  
*Yumika Makimura, Yoshihide Shibata, Shinsuke Hoshino and Ryusuke Ae*
3. Wavelet analysis of COVID-19 pandemic,  
*Kazumi Omata, Ayumi Shimazaki and Hiroaki Mitsuya*

Symposium 3 on Advanced Numerical Analysis and Software in Multiphysics and Coupled Problems

Session 22, 11:30–12:10, Hall C

Chair: Akihiro Kudo (National Institute of Technology, Tomakomai College)

1. How to make your own mesh generator using ADVENTURE AutoMESH ?,  
*Hiroshi Kawai*
2. Development of Parallel Microwave analysis software: ADVENTURE\_Fullwave,  
*Amane Takei*

OS5: Multi Dimensional Communication Networks

Session 25, 11:30–12:10, Hall D

Chair: Naoyuki Karasawa (Kaishi Professional University)

1. Scheme Design for High-Throughput Terahertz feeder link in Non-Terrestrial-Networks,  
*Kazuhiko Tamesue, San Hlaing Myint, Kunihisa Jitsuno, Toshio Sato, Takuro Sato and Tetsuya Kawanishi*
2. Decoupling and Bandwidth Maintenance for Two Planar Inverted-F Antennas using Bridge Line,  
*Quang Quan Phung, Naobumi Michishita, Hiroshi Sato, Yoshio Koyanagi and Hisashi Morishita*

OS7: Plasma, Materials, Fusion Science, and their AI applications

Session 28, 11:30–12:30, Hall E

Chair: Satoshi Togo (Tsukuba University)

1. Improvement of the efficient electrostatic plasma particle simulation code for the investigation of boundary layer plasmas,  
*Hiroki Hasegawa and Seiji Ishiguro*
2. Pseudo-Maxwellian and Ring Velocity Distributions in a Magnetized Plasma,  
*Shunsuke Usami and Ritoku Horiuchi*
3. Simulation study of Pixel Super-Resolution X-ray Phase Imaging with Triangular Phase Grating,  
*Ryosuke Ueda and Atsushi Momose*

12:30–13:30 Lunch Break

13:30–14:15 Corporate Seminar 2 (in Japanese)

Hall A

How to choose the best device that frees CAE work from stress

*Sakura Shimazaki / Akio Kawaguchi (HP Japan Inc. / GDEP Solutions, Inc.)*

Hall B

Case Studies of using AR/VR devices for visualization of CAE simulation results

*Youji Matsumoto (Cybernet systems Co. Ltd.)*

14:15–14:30 Break

14:30–14:35 Announcement about JSST2023, Hall C

Shotgun Presentation, 14:35–15:15, Hall C

15:15–15:30 Break

Student Session, 15:30–18:00, Remo

Chair: Hiroshi Tamura (Chuo University) and Yoshihide Shibata (National Institute of Technology, Gifu college)

- P1-01. Explosive crystallization of amorphous Ge studied by molecular-dynamics simulations  
*Shunya Nagaoka and Manabu Ishimaru*
- P1-02. Effect of voltage application rate on resistance change characteristics in Ta<sub>2</sub>O<sub>5</sub>-based ReRAM cells  
*Gaku Ishizu and Yusuke Nishi*
- P1-03. Simulation of Panic Buying in a Disaster Focusing on Consumer Information Transfer  
*Taku Ideguchi, Kazuo Furuta and Taro Kanno*
- P1-04. Development of Multiscale Synchronic Simulation Method for Brain Neuronal Groups  
*Sho Ikeda*
- P1-05. Numerical prediction of water–ice phase–change with natural convection including density inversion region  
*Kazuki Nishimoto, Daisuke Toriu and Satoru Ushijima*
- P1-06. Consideration of Dust Accumulation Process of Grows Fractal-wise  
*Masaki Ohtani and Norikane Kanai*
- P1-07. Base station placement problem in 5th generation mobile communication systems  
*Shoya Kurebayashi and Hiroshi Tamura*
- P1-08. Algorithm for Detour Hinge Vertex Problem of Circular-arc Graphs  
*Tomonari Izumi, Syoma Nameki, Yoko Nakajima, Hirotoshi Honma and Toshihiro Fujito*
- P1-09. Development of a System to Predict Child Abuse in Newborns  
*Yuya Sato, Yoko Nakajima, Hirotoshi Honma, Yasuko Makita and Kazuyo Matsuura*

- P1-10. A System to Generate Kanji Reading and Writing Questions for Learners of the Japanese Language  
*Toshiki Aisaka, Yoko Nakajima, Hirotoishi Honma and Tomoko Watanabe*
- P1-11. Molecular Dynamics Simulation of Clustered DNA Damage Composed of Apurinic/Apyrimidinic Sites  
*Kazushi Terakawa, Susumu Fujiwara, Tomoko Mizuguchi, Yoshiteru Yonetani, Naoya Shikazono, Ken Akamatsu and Hiroaki Nakamura*
- P1-13. Automatic Chord Estimation Using CGAN  
*Ryuto Morita and Takashi Hara*
- P1-14. Identification of Road Signs Using Shape Estimation from Depth Images  
*Haruka Aiko, Kazuhiro Takeda and Takashi Hara*
- P2-01. Enhancement of Images Reflected on Electronic Mirrors  
*Shoma Higashiyama, Shota Furukawa, Takashi Hara and Kazuhiro Takeda*
- P2-02. Numerical Experiments of Swelling Objects Interacting with Newtonian Fluids  
*Niku Guinea, Daisuke Toriu and Satoru Ushijima*
- P2-03. Improvement of Lagrange fluid simulation for application to a linear plasma experiment  
*Morihiro Mine and Kazuo Hoshino*
- P2-04. Consideration of "Preventing deforestation and Forest preservation activities in Myanmar"  
*Myo Thiri Thu and Akira Otsuka*
- P2-05. Analysis of Hydrogen Bonds inside Reverse Micelles by Molecular Dynamics Simulations  
*Yuri Ono, Tomoko Mizuguchi and Mao Fukuyama*
- P2-06. Simulation of radiation source location estimation using Compton camera  
*Yoshiki Otori and Katsuhiko Yamaguchi*
- P2-07. Verification of Estimation Accuracy for Shield Distribution Aggregation using Machine Learning  
*Yuto Kondo, Masaharu Matsumoto, Kenji Suzuki and Katsuhiko Yamaguchi*
- P2-08. Electrostatic field simulation using deep learning  
*Tsubasa Sagara, Masaharu Matsumoto, Kenji Suzuki and Katsuhiko Yamaguchi*
- P2-09. Multiscale analysis of magnetic materials in the mesoscopic region  
*Yasuyuki Igarashi and Katsuhiko Yamaguchi*
- P2-11. The Benefit of Data Augmentation Performed by Surrogate Modeling  
*Takumi Nomura and Tomonori Yamada*
- P2-12. Configurational Entropy of a Monatomic Glassy System  
*Ayata Ueno and Tomoko Mizuguchi*
- P2-13. Numerical analysis of hydrodynamic equations using Spreadsheet software  
*Sakuya Inoue, Kiyomi Yamane, Munkhbileg Batchuluun and Hiroki Homma*
- P2-14. Analysis of cycle-to-cycle variation components in engine cylinder flow  
*Shizuka Morikawa and Yuichi Itoh*

Friday, 2 September

Plenary Talk 2 (Advanced Concept and Methodology in Bioscience)

9:00–10:00, Hall B

Chair: Hiroaki Nakamura (National Institute for Fusion Science)

(Plenary) Origins of Bioorganic Compounds and Their Homochirality: Approaches from Simulation Experiments,

*Prof. Kensei Kobayashi (Yokohama National University)*

10:00–10:15 Break

OS3: XR (VR, AR and MR) and Its Application

Session 29, 10:15–11:15, Hall A

Chair: Yuichi Tamura (Konan University)

1. VisAssets: Development of a visualization framework for the game engine,  
*Shintaro Kawahara, Hideo Miyachi and Hiroaki Ohtani*
2. VOIR: Interactive Visualization Software for Head-Mounted Display Devices,  
*Nobuaki Ohno and Akira Kageyama*
3. VR Extension of Particle-based Remote Visualization Application,  
*Takuma Kawamura and Naohisa Sakamoto*

Symposium 2 on Advanced Concept and Methodology in Bioscience

Session 32, Invited Talks, 10:15–11:15, Hall B

Chair: Yoshihide Shibata (National Institute of Technology, Gifu College)

1. (Invited) Molecular dynamics study of microscopic mechanism of OH radical-induced DNA damage,  
*Mr. Ryuta Kawanami (Kyoto Institute of Technology)*
2. (Invited) The Secret to Successful medical-industrial Collaboration,  
*Prof. Naohisa Yahagi (Keio University)*

Symposium 3 on Advanced Numerical Analysis and Software in Multiphysics and Coupled Problems

Session 35, 10:15–11:15, Hall C

Chair: Amane Takei (University of Miyazaki)

1. Large-scale urban flood simulation with building-cube method,  
*Masashi Morishita, Koji Nishiguchi, Tokimasa Shimada and Tetsuro Tamura*
2. Gas-liquid-solid Three-phase Finite Element Analysis based on Multi-phase-field Model,  
*Junichi Matsumoto and Tomohiro Sawada*
3. Large-Scale Computation of Transient Topology Optimization Using the Building-Cube Method  
*Ryohei Katsumata, Koji Nishiguchi, Tokimasa Shimada, Hiroya Hoshiba and Junji Kato*

OS1: Simulation Technology in Origami

Session 38, 10:15–11:15, Hall D

Chair: Sachiko Ishida (Meiji University)

1. Systematization of the newly developed energy density topology optimization method for the interior noise problems,  
*Aya Abe, Dahai Mi, Masanori Hashiguchi and Ichiro Hagiwara*
2. Simulation analysis of undressing methods in snakes and arthropods,  
*Taiju Yoneda and Kazuya Saito*
3. Designing of earwig inspired 3D deployable structures based on the algorithmic design tool,  
*Chisaki Kitajima and Kazuya Saito*

OS9+ OS10: Complex Networks and Complex Systems (OS9), Complex and Ultimate Systems (OS10)

Session 41, 10:15–11:15, Hall E

Chair: Atsushi Tanaka (Yamagata University)

1. Computation of laminar-turbulent flow transitions in a circular pipe with a bellmouth inlet,  
*Riku Sato, Hiroki Kijima, Tomotaka Kobayashi and Ken Naitoh*
2. On a simple dynamical map with a flooring function,  
*Toru Ohira*
3. Automatic generation of training data for AI for posture estimation of demolition heavy machinery in CG,  
*Hideo Miyachi and Koshiro Murakami*

11:15–11:30 Break

OS3: XR (VR, AR and MR) and Its Application

Session 30, 11:30–12:30, Hall A

Chair: Hiroaki Ohtani (National Institute for Fusion Science)

1. Relationship between size perception and vergence in virtual space,  
*Hiroyuki Makino, Nobuaki Ohno and Yuichi Tamura*
2. In-situ Visualization of 3-D Cellular Automata,  
*Ren Sakai, Yan Wang and Akira Kageyama*
3. Discussing surface reconstruction of plasma shape boundary in a fusion reactor,  
*Kunqi Hu and Koji Koyamada*

Symposium 2 on Advanced Concept and Methodology in Bioscience

Session 33, 11:30–12:10, Hall B

Chair: Yoshihide Shibata (National Institute of Technology, Gifu College)

1. Order-N first-principles DFT molecular dynamics calculations for large-scale biomolecular systems: Early stage behavior of temperature-controlled molecular dynamics calculations,  
*Takao Otsuka*
2. Reactive molecular dynamics study on intermolecular structural changes of hydrogen-abstracted polyethylene chains,

*Haolun Li, Susumu Fujiwara, Hiroaki Nakamura, Tomoko Mizuguchi, Shinji Saito and Wataru Sakai*

Symposium 3 on Advanced Numerical Analysis and Software in Multiphysics and Coupled Problems

Session 36, 11:30–12:10, Hall C

Chair: Koji Nishiguchi (Nagoya University)

1. Determination of Resonant Mechanism of Polymer Micromachined Insect Inspired Flapping Device Using Finite Element Modal Analysis,  
*Kazuya Ishiba, Minato Onishi and Daisuke Ishihara*
2. Sound field evaluation of experimental environment with ADVENTURE\_Sound,  
*Akihiro Kudo and Amane Takei*

OS1: Simulation Technology in Origami

Session 39, 11:30–12:30, Hall D

Chair: Taiju Yoneda (Kyushu University)

1. Numerical study on compressive behaviour of truncated origami structures,  
*Wei Qiang, Yvonne Durandet and Guoxing Lu*
2. The research on damper for cylindrical origami structure using reversed spiral model,  
*Jingchao Guan, Jingshun Zuo and Xilu Zhao*
3. Kirigami Fabrication of Shaped, Flat-foldable Metamaterials based on Reverse Spiral Origami (RSO) Polyhedrons for Life Jacket,  
*Luis Diago, Junichi Shinoda and Ichiro Hagiwara*

OS9+ OS10: Complex Networks and Complex Systems (OS9), Complex and Ultimate Systems (OS10)

Session 42, 11:30–12:30, Hall E

Chair: Ken Naitoh (Waseda University) and Toru Ohira (Nagoya University)

1. Effectiveness of Turn Alternation Strategy,  
*Atsushi Tanaka and Tetsu Takahashi*
2. An image analysis for automatic detection of social interaction between drosophila: biased courtship behavior,  
*Tasuku Arai, Ki-Hyeon Seong and Siu Kang*
3. Activation Functions for Chaotic and Random Neural Networks,  
*Hitoaki Yoshida and Takeshi Murakami*

12:30–13:30 Lunch Break

OS3: XR (VR, AR and MR) and Its Application

Session 31, 13:30–14:10, Hall A

Chair: Nobuaki Ohno (University of Hyogo)

1. Continuous quantity visualization of time history response analysis results using individual building attributes,

*Kanta Tsutsui, Rina Honda and Yasuyuki Nagano*

2. Virtual-reality visualization of number density of intersection points of energetic tritons and plasma-facing wall,

*Hiroaki Ohtani, Kunihiro Ogawa, Suguru Masuzaki and Seiji Ishiguro*

Symposium 2 on Advanced Concept and Methodology in Bioscience

Session 34, 13:30–14:10, Hall B

Chair: Hiroaki Nakamura (National Institute for Fusion Science)

1. Evaluation of Electrostatic Potential of Molecules by Electron Diffraction Technology,  
*Takuo Yasuanga and Yasuhisa Honda*
2. Generation of Cell-Sized Water/Water Droplets through Phase-Separation under Confinement,  
*Takahiro Kenmotsu, Mayu Shono, Hiroki Sakuta and Kenichi Yoshikawa*

Symposium 3 on Advanced Numerical Analysis and Software in Multiphysics and Coupled Problems

Session 37, 13:30–14:10, Hall C

Chair: Kawai Hiroshi (Toyo University)

1. Flight performance evaluation of polymer micromachined flapping-wing nano air vehicle using fluid-structure interaction analysis,  
*Rashmi Kant, Daisuke Ishihara and Minato Onishi*
2. Fluid-structure interaction design of the polymer micromachined insect-inspired flapping wings,  
*Vinay Shankar, Minato Onishi and Daisuke Ishihara*

OS1: Simulation Technology in Origami

Session 40, 13:30–14:10, Hall D

Chair: Luis Diago (Meiji University/Interlocus Inc.)

1. High-Speed and High-Precision Eigen frequencies Control Technology Using Energy Density,  
*Toshie Sasaki and Ichiro Hagiwara*
2. Out-of-plane stiffness and strength of bio-inspired honeycomb cores with extra hollows,  
*Sachiko Ishida, Mudong Li and Kazuya Saito*

14:10–14:30 Break

Closing Ceremony

14:30–15:00, Hall A