

Final Program of JSST2018

Tuesday, 18 September

Opening Ceremony

9:30–9:45, Room–A304

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

9:45–10:45, Room–A304

Chair: Soichiro Ikuno (Tokyo University of Technology)

Topology Optimization Based on Deep Learning and toward Their Coevolution,

Prof. Hajime Igarashi (Hokkaido University)

10:45–11:00 Break

Symposium 1 on Numerical Simulation and Visual Analytics of Nonlinear Problems

Session 01, 11:00–12:20, Hall A

Chair: Kuniyoshi Abe (Gifu Shotoku Gakuen University)

1. A complex moment-based method and its improvement for computing partial singular value decomposition,
Akira Imakura and Tetsuya Sakurai
2. An overview of various algorithms for computing tall-skinny QR factorization,
Takeshi Fukaya and Yusaku Yamamoto
3. An improvement of accuracy of the Block BiCGSTAB method by reconstructing recursions,
Hiroto Tadano and Ryosei Kuramoto
4. Improvement of Convergence Property of Communication Avoiding Krylov Subspace Method,
Soichiro Ikuno, Akira Matsumoto, Yoshihisa Fujita and Taku Itoh

Symposium 2 on Analysis of Optical Vortex Field and Applications

Invited Talks, 11:00–12:00, Hall B

Chair: Hiroaki Nakamura (National Institute for Fusion Science)

1. (Invited) Vortex mode emissions from large-area vertical-cavity surface-emitting laser with optical feedback,
Prof. Yasunori Toda (Hokkaido University)
2. (Invited) Classical Radiation Damping and Emission of Optical Vertex as Microscopic Irreversible Processes,
Prof. Tomio Petrosky (University of Texas at Austin)

OS5: Numerical Computations

Session 07, 11:00–12:00, Hall C

Chair: Katsuhisa Ozaki (Shibaura Institute of Technology)

1. General scenario of the selective mesh stiffening in the pseudoelastic mesh–moving,
Daisuke Ishihara, Atsushi Goto, Minato Onishi, Tomoya Niho and Tomoyoshi Horie
2. A partition model for the computer simulation of the maneuver in insect flapping flight,
Minato Onishi, Daisuke Ishihara and Tomoyoshi Horie
3. Computational model for a hot box at shell-to-skirt junction with a fin attachment,
Andrey Stephan Siahaan, Himsar Ambarita, Hideki Kawai and Masashi Daimaruya

OS2: Computational electromagnetics and its applications

Session 11, 11:00–12:20, Hall D

Chair: Kota Watanabe (Muroran Institute of Technology)

1. Homogenization Based on Continued Fraction: Application to Magnetic Field Analysis,
Shingo Hiruma and Hajime Igarashi
2. An Efficient Analysis of Butt Coupling Between Dielectric and Plasmonic Waveguide Using Propagation Operator Method Based on Finite Element Scheme,
Keita Morimoto and Yasuhide Tsuji
3. Modeling of Soft Magnetic Composite Using Cell Automaton,
Akito Maruo and Hajime Igarashi
4. Development of dielectric cover with hemisphere for millimeter-wave waveguide slot antenna,
Keiichi Itoh, Masaya Kumata, Kazuma Takita, Masaki Tanaka, Hideaki Matsuda and Hajime Igarashi

12:00–13:30 Lunch Break

Symposium 1 on Numerical Simulation and Visual Analytics of Nonlinear Problems

Session 02, 13:30–14:30, Hall A

Chair: Naohisa Sakamoto (Kobe University)

1. Highlighting Feature Regions based on See-Through Visualization of Laser-Scanned Cultural Heritage Applying Adjustment of Point Density,
Hiroki Nagata, Kyoko Hasegawa, Liang Li, Atsushi Okamoto and Satoshi Tanaka
2. Extended Feature-Highlighting Methods for See-through Visualization of Laser-scanned 3D Point Clouds,
Kyouma Nishimura, Kenta Matsuda, Liang Li, Kyoko Hasegawa, Atsushi Okamoto and Satoshi Tanaka
3. Visualizing large-scale tsunami simulation using a multi-dimensional transfer function in the HSVA color space,
Ikuya Morimoto, Satoshi Nakada, Kyoko Hasegawa, Liang Li and Satoshi Tanaka

Symposium 2 on Analysis of Optical Vortex Field and Applications

Tutorial Talk, 13:30–14:00, Hall B

Chair: Masahiro Kato (Institute for Molecular Science)

(Tutorial) Berry-phase theory of electromagnetic waves with spin and orbital angular momentum,
Prof. Kei Sawada (RIKEN)

OS5: Numerical Computations

Session 08, 13:30–14:30, Hall C

Chair: Katsuhisa Ozaki (Shibaura Institute of Technology)

1. Performance Evaluation of Verification Methods for Linear Systems on Super Computers,
Katsuhisa Ozaki, Takeshi Ogita and Takahiro Katagiri
2. Verified Algorithm of Hyperfunction Method for Numerical Integration,
Naoya Yamanaka and Shin'ichi Oishi
3. Optimization of GPU-based Monte Carlo simulator for radiation physics at DNA scale,
Shogo Okada, Koichi Murakami, Katsuya Amako, Sebastien Incerti and Takashi Sasaki

OS2: Computational electromagnetics and its applications

Session 12, 13:30–14:30, Hall D

Chair: Amane Takei (University of Miyazaki)

1. Speed-up of Simulation of Magnetization Process of HTS Undulator for X-ray FEL Based on Power-law Macro-model,
Deri Yi and Hideki Kawaguchi
2. Allay of the micro electrostatic lenses for the divided images on the 2D-sampling streak camera,
Yoshihiro Ito, Shinnosuke Sato and Toyose Kanazawa
3. Concept of high-speed camera for TEM using Ponderomotive-Deflection,
Toyose Kanazawa and Yoshihiro Ito

14:30–14:45 Break

Symposium 1 on Numerical Simulation and Visual Analytics of Nonlinear Problems

Session 03, 14:45–15:45, Hall A

Chair: Teruo Takayama (Yamagata University)

1. Molecular Dynamics Simulation of Ion Implantation with Heat Transfer into Bulk,
Seiki Saito, Hiroaki Nakamura, Keiji Sawada, Masahiro Kobayashi, Gakushi Kawamura and Masahiro Hasuo
2. Location Estimation of Radiation Source using Deep Learning,
Takero Uemura and Katsuhiko Yamaguchi
3. Analysis of a domain wall displacement in a cluster with a void using LLG equation,
Kosuke Miyashita and Katsuhiko Yamaguchi

Symposium 2 on Analysis of Optical Vortex Field and Applications

Session 05, 14:45–15:45, Hall B

Chair: Masahito Hosaka (Nagoya University)

1. Application of optical vortex to gas flow measurement in plasma,
Mitsutoshi Aramaki, Masaki Yamamoto, Shinji Yoshimura, Kenichiro Terasaka and Tomohiro Morisaki
2. Ultrafast Dynamics of High-Harmonic Generation with Floquet Complex Spectral Analysis,
Satoshi Tanaka, Hidemasa Yamane, Ken-Ichi Noba and Tomio Petrosky
3. Optical vortex pulse induced orbital angular momentum dynamics in superconductors,
Hiroto Mochizuki, Yasunori Toda, Satoshi Tsuchiya, Keisaku Yamane, Ryuji Morita, Tohru Kurosawa and Migaku Oda

OS5: Numerical Computations

Session 09, 14:45–15:45, Hall C

Chair: Naoya Yamanaka (Meisei University)

1. Computable error bounds for floating-point filters,
Yuki Ohta and Katsuhisa Ozaki
2. Generation of Large-Scaled Matrices with Specified Eigenvalues for Parallel and Distributed Computing,
Takeshi Terao and Katsuhisa Ozaki
3. Verification of Computational Order of GEMV and GEMM,
Atsushi Sakamoto and Katsuhisa Ozaki

OS2: Computational electromagnetics and its applications

Session 13, 14:45–15:45, Hall D

Chair: Hajime Igarashi (Hokkaido University)

1. Direct Flux Method to Solve Flux Distribution of Two-dimensional Poisson's Equation,
Arata Hirokami and Satoshi Tomioka
2. Large-Scale Visualization of High-Frequency Electromagnetic Field Problem of Numerical Human Body Model more than 10 Billion DOFs,
Shin-Ichiro Sugimoto, Ichiro Takahashi, Maso Ogino and Amane Takei
3. Improvement of Convergence in $A\text{-}\phi$ Method based on Domain Decomposition Method by Using Singular Value Decomposition,
Mizuma Takehito and Takei Amane

15:45–16:00 Break

Symposium 1 on Numerical Simulation and Visual Analytics of Nonlinear Problems

Session 04, 16:00–17:20, Hall A

Chair: Seiki Saito (NIT, Kushiro College)

1. Modified Improved Interpolating Moving Least Squares Approximation for Element-free Galerkin Methods,
Yoshihisa Fujita, Soichiro Ikuno, Taku Itoh and Hiroaki Nakamura
2. Meshless Approach for Solving 2D Steady-State Electromagnetic Wave Scattering Problem,
Ayumu Saitoh, Teruou Takayama and Atsushi Kamitani
3. Numerical Studies for MrR Algorithm for Solving Linear Equations with Symmetric Matrices,
Kuniyoshi Abe and Seiji Fujino
4. Numerical Algorithm for sine integral with verification,
Naoya Yamanaka, Tomoaki Okayama and Shin'Ichi Oishi

Symposium 2 on Analysis of Optical Vortex Field and Applications

Session 06, 16:00–17:20, Hall B

Chair: Shin Kubo (National Institute for Fusion Science)

1. Design of Polarization Splitter Based on Coupled EC-CHF with Tapered Structure by Using Full Vector FE-BPM Using Coordinate Transformation,
Shingo Kawamura and Yasuhide Tsuji
2. Electron Cyclotron Emission with Vortex Property from Phase Matched Multi-electron System,
Yuki Goto, Shin Kubo and Toru Tsujimura
3. Orbital Angular Momentum of Electromagnetic Wave in Waveguide,
Hiroaki Nakamura, Naomichi Hatano, Shin Kubo and Tomio Petrosky
4. Numerical analysis of vortex field of microwave by FDTD method,
Hideki Kawaguchi

OS1: Simulation Technology in Origami

Session 10, 16:00–17:00, Hall C

Chair: Zhao Xilu (Saitama Institute of Technology) and Sachiko Ishida (Meiji University)

1. Shape Optimization to Improve Energy Absorption Ability of Cylindrical Origami Structure,
Zhao Wei, Kong Cenghai and Zhao Xilu
2. A proposition of new cushioning material Assembly Truss Core Panel,
Aya Abe, Kousuke Terada and Ichiro Hagiwara
3. Fundamental study on acoustic properties of resonators using deployable cylinders,
Sachiko Ishida and Ryo Matsuura

OS4: Multi dimensional communication networks

Session 14, 16:00–17:00, Hall D

Chair: Kenichi Ito (Niigata Institute of Technology)

1. Effect of metal plate on Near-metal-Insensitive antenna,
Yuta Nakagawa, Naobumi Michishita and Hisashi Morishita
2. Graph coloring corresponding to channel assignment in wireless communication,
Hiroshi Tamura, Takashi Nomura and Keisuke Nakano
3. A study on information floating considering human body shadowing and mobility characteristics of nodes,
Naoyuki Karasawa, Kazuyuki Miyakita, Keisuke Nakano and Hiroshi Tamura

[Wednesday, 19 September](#)

Plenary Talk 2 (Analysis of Optical Vortex Field and Applications)

9:00–10:00, Room-A304

Chair: Hideki Kawaguchi (Muroran Institute of Technology)

Structured light beams possessing orbital angular momentum,
Prof. Takashige Omatsu (Chiba University)

10:00–10:15 Break

Symposium 1 on Numerical Simulation and Visual Analytics of Nonlinear Problems

Invited and Tutorial Talks, 10:15–11:15, Hall A

Chair: Satoshi Tanaka (Ritsumeikan University)

1. (Invited) Construction of Virtual Reality Application based on System Design Approach,
Prof. Tetsuro Ogi (Keio University)
2. (Tutorial) Microwave analysis based on parallel finite element analysis,
Prof. Amane Takei (University of Miyazaki)

Symposium 2 on Analysis of Optical Vortex Field and Applications

Session 17, 10:15–11:15, Hall B

Chair: Satoshi Tanaka (Osaka Prefecture University)

1. Spin-Twisted Ring Current driven by Berry Phase,
Yosuke Kayanuma and Maseim Kenmoe
2. Modified dynamics and other properties near exceptional points,
Savannah Garmon
3. Nano-structuring of multi-layer material by single x-ray vortex pulse with femtosecond duration,
Yoshiki Kohmura, Vasily Zhakhovsky, Dai Takei, Yoshio Suzuki, Akihisa Takeuchi, Ichiro Inoue, Yuichi Inubushi, Nail Inogamov, Tetsuya Ishikawa and Makina Yabashi

OS6: Design of Robotics and Mechatronics Systems

Session 19, 10:15–11:15, Hall C

Chair: Masami Iwase (Tokyo Denki University)

1. Attitude Stabilization Control of Electrically-Assisted Bicycle Based on Physical Modeling,
Takayuki Wada, Seina Toda, Tatsumasa Kumagai, Keichi Onodera and Masami Iwase
2. Development of power assisted scissors for hairdresser: Verification of feedforward control,
Naoka Nagashima, Taishi Tsukada, Norihiro Kamamichi, Taro Fujikawa, Masami Iwase and Kazuyoshi Takahashi
3. UKF-Based Simultaneous Parameter and State Estimation of a Cleaning Mobile Robot with Slip,
Takuma Nemoto and Rajesh Elara Mohan

OS4: Multi dimensional communication networks

Session 22, 10:15–10:55, Hall D

Chair: Hisashi Morishita (National Defense Academy of Japan)

1. A Study on Dynamic Optimization of Four-Coil Power Transfer System for Magnetically-Coupled Intra-body Communication,
Kenichi Ito
2. A Markov-Based Handover Scheme for Macro-Femtocell Networks,
Qiaozhi Hua, Yuwei Su, Keping Yu and Takuro Sato

11:15–11:30 Break

Shotgun Presentation, 11:30–12:15, Room-A304

12:15–13:30 Lunch Break

Student Session, 13:30–15:00, University Small Hall

Chair: Hiroshi Tamura (Chuo University) and Seiki Saito (NIT, Kushiro College)

- P02. Identification of Harmful Ingredients of Cosmetics using User Comments,
Yoko Nakajima, Akiko Saito, Rio Iwabuchi, Hirotoshi Honma, Tomoyoshi Akiba
- P03. Analysis of Optimal Batting Order and Tactics of Professional Baseball Game,
Toshitaka Tsubata, Yoko Nakajima, Hirotoshi Honma, Fumito Masui
- P04. Machine learning and extraction of features in Japanese musical instruments,
Shintaro Sato, Syunsuke Ebihara, Hiroshi Tamura
- P05. Proposal of Estimation Algorithm to Logic Circuit using Multilayered Neural Network,
Kyogo Sasaki, Ichiro Miki, Osamu Ono
- P06. Feature value extraction for Japanese drum rhythm and evaluation using Machine learning,
Shunsuke Ebihara, Shintaro Sato, Hiroshi Tamura
- P07. Autonomous movement of Pepper for SLAM,
Ryoma Hanabusa, Toshifumi Satake, Naoki Igo
- P08. Comparison between experimental and simulation results of negative ion mobility in O₂,
Kazuki Ikeda, Yui Okuyama, Hirotake Sugawara
- P09. Distance correction using attenuation of receiver signal for the ultrasonic measurement system,
Singo Takahashi, Shunsuke Matsuoka, Hideki Kawaguchi, Naoki Fujieda, Shuichi Ichikawa
- P10. Improvement of the directivity for ultrasonic positioning system by using array transmitters,
Hiromichi Itoi, Shunsuke Matsuoka, Hideki Kawaguchi, Naoki Fujieda, Shuichi Ichikawa
- P11. Predictive simulation of step response of an object levitated by near-field acoustic levitation,
Yo Iwasaki, Manabu Aoyagi, Hidekazu Kajiwara
- P12. Simulation of rotational torque of non-contact stepping ultrasonic motor,
Taiki Hirano, Manabu Aoyagi, Hidekazu Kajiwara, Hideki Tamura, Takehiro Takano
- P13. Simulation of holding force acting to levitated object in nearfield acoustic levitation,
Kouhei Aono, Manabu Aoyagi, Hidekazu Kajiwara, Hideki Tamura, Takehiro Takano

- P14. Neutron irradiation simulation on tungsten materials by PHITS code,
Kanta Suzuki, Hiroaki Nakamura, Seiki Saito
- P15. Electromagnetic field analysis of microwave jet plasma generator using the FDTD method,
Ibuki Kawata, Hiroaki Nakamura, Yoshihisa Fujita, Seiki Saito
- P16. The Effect of Helium Plasma Irradiation to Tungsten Materials with Helium Bubbles,
Sen Fueki, Hiroaki Nakamura, Seiki Saito
- P17. Numerical simulation of chemical compositions and its concentrations in solution by atmospheric pressure plasma irradiation,
Kladphet Thanet, Thai Van Phuoc, Shinnosuke Abe, Kazumasa Takahashi, Toru Sasaki, Takashi Kikuchi
- P18. Estimation system of daylight hours using hemispherical photograph taken with smartphone,
Taisei Hirakawa, Taro Mori, Satoshi Asamizu
- P19. Numerical modeling and simulation for linear Rogowski coil in lumped and distributed circuits,
Kyoko Fujiwara, Takashi Kikuchi, Toru Sasaki, Kazumasa Takahashi, Fumihiko Tamura, Akira Tokuchi
- P20. The Automated Train Rescheduling System included Mathematical Traffic Flow Simulation,
Yutaka Kono, Kazuyuki Nakamura
- P21. Prevention Oversight of Road Sign using AR Technology,
Kazuki Yamada, Yoshihisa Fujita
- P22. Development of Multi Motor System in Robot Handling,
Haruto Nakata, Yoshihisa Fujita
- P23. Numerical Simulation of Air-pressure Wave using Game Engine,
Ryosuke Takada, Yoshihisa Fujita
- P24. Multiuser Transmit Heuristic Beamforming using Constrained Binary PSO based Antenna Selection,
Dhruba Raj Dhakal, Phonfred J. Okoth, Takuro Sato, Shigeru Shimamoto
- P25. Computational Method for Compressible Fluids with Pressure-Poisson Equations,
S. Ushijima, W. Liu, H. Tanaka, D. Toriu
- P26. Numerical and experimental analysis of flow transition in Taylor-Couette system with small aspect ratio,
Tatsuya Fujii, Yoshihiko Oishi, Hideki Kawai, Hideki Murakawa, Hiroshige Kikura
- P27. Applicability of Pressure-Velocity Correction Algorithm (C-HSMAC method) to Incompressible Fluids with Passive Scalar Convection,
S. Ushijima, H. Tanaka, W. Liu, D. Toriu
- P28. Music Pattern Classification for Piano Performance Skills Evaluation,
Hiroto Taniguchi, Tsubasa Shimaya, Kyoko Mine, Ikuko Hamada, Ori Doeda, Masanao Yamada
- P29. Development of remote watching system for the elderly people,
Yoshiki Shirai, Shinya Oyama
- P30. A Consideration on Effects of Error of Position Information in Information Floating,
Motoshi Gamo, Kazuyuki Miyakita, Keisuke Nakano
- P31. Propagation Challenges for 5G MillimeterWave-enabled Communication Systems: The UMi

Scenario,

Ahmad S. Seraj, Takuro Sato

P32. Study of Optimizing Load Distribution for Distributed Parallel Processing,

Shogo Kanda, Masaki Maezono, Takashi Hara, Kazuhiro Takeda

P33. Study of Image Processing for Detecting Linear Foreign Object Using Distributed Parallel Processing,

Reo Hamada, Masaki Maezono, Takashi Hara, Kazuhiro Takeda, Kojiro Shiba

P34. The Particle-In-Cell simulation on LEO spacecraft charging and the wake structure using EMSES,

Nizam Ahmad, Hideyuki Usui, Yohei Miyake

15:00–15:15 Break

Symposium 1 on Numerical Simulation and Visual Analytics of Nonlinear Problems

Session 15, 15:15–16:15, Hall A

Chair: Koji Koyamada (Kyoto University)

1. Three-Dimensional Shape Modelling of Metal Foam with Rounded Cells by Implicit Surfaces,
Yuya Hanaoka, Momoko Nojiri, Taku Itoh, Susumu Nakata and Keiko Watanabe
2. Transparent visualization for dynamical analysis of tsunami in the Nankai Trough earthquake,
Yuto Sakae, Takuya Ozaki, Ryo Kurimoto, Liang Li, Kyoko Hasegawa, Satoshi Nakada and Satoshi Tanaka
3. Feature extraction of particle volume data and its application to transparent visualization,
Masato Nakai, Kyoko Hasegawa, Liang Li and Satoshi Tanaka

Symposium 2 on Analysis of Optical Vortex Field and Applications

Session 18, 15:15–16:15, Hall B

Chair: Kei Sawada (RIKEN)

1. Numerical simulation on generation and propagation of vortex synchrotron radiation,
Masahito Hosaka
2. Generation of gamma-ray vortices by nonlinear in-verse Thomson scattering,
Yoshitaka Taira
3. Manifestation of the optical vortex property of non-relativistic cyclotron harmonic emission in microwave region,
Shin Kubo, Yuki Goto and Toru Tsujimura

OS6: Design of Robotics and Mechatronics Systems

Session 20, 15:15–16:15, Hall C

Chair: Shunsuke Nansai (Tokyo Denki University)

1. Simultaneous Design of Mechanism and Control System for Inverted-Pendulum,
Ryoga Okabe, Shoshiro Hatakeyama and Masami Iwase
2. Locomotion Control of Snake-like Robot Considering Contact Points Varying According to Environment: Contact Point Estimation method,

Takeru Ishimoto and Masami Iwase

3. Arbitrary Viewpoint Visualization for Disaster Response Robots,
Masataka Fuchida, Shota Chikushi, Moro Alessandro, Atsushi Yamashita and Hajime Asama

OS7: IoT, D2D, V2X and Wireless Communications towards Beyond 5G

Session 23, 15:15–16:15, Hall D

Chair: Shigeru Shimamoto (Waseda University)

1. Contention-Based SCMA for Narrow-Band Internet of Things using Sequential Learning,
Bayisa Taye Mulatu, Zhenni Pan, Jiang Liu and Shigeru Shimamoto
2. Content-oriented Connected Car System,
Wei Zhou, Zheng Wen and Takuro Sato
3. Signal Priority Management for Bus with V2I Network,
Huan Wang, Takashi Koshimizu and Shigeru Shimamoto

16:15–16:30 Break

Symposium 1 on Numerical Simulation and Visual Analytics of Nonlinear Problems

Session 16, 16:30–17:30, Hall A

Chair: Taku Itoh (Nihon University)

1. Shielding Current Analysis in Axisymmetric High-Temperature Superconducting Film by Equivalent-Circuit Model,
Takazumi Yamaguchi, Teruou Takayama, Ayumu Saitoh and Atsushi Kamitani
2. FDTD simulation of array transmitters for ultrasonic positioning system,
Shunsuke Matsuoka, Takuya Nishimura, Takuma Moritani and Hideki Kawaguchi
3. FEM-Simulation of Pellet Injection System by High-Temperature Superconducting Linear Acceleration,
Teruou Takayama, Takazumi Yamaguchi, Ayumu Saitoh and Atsushi Kamitani

OS6: Design of Robotics and Mechatronics Systems

Session 21, 16:30–17:10, Hall C

Chair: Takuma Nemoto (Singapore University of Technology and Design)

1. Simulation of time and frequency response of Li-ion battery with fractional order transfer function model,
Keichi Onodera, Takuro Shindo and Masami Iwase
2. Foot Location Algorithm for Facade Cleaning Robot,
Shunsuke Nansai and Hiroshi Itoh

OS7: IoT, D2D, V2X and Wireless Communications towards Beyond 5G

Session 24, 16:30–17:10, Hall D

Chair: Shigeru Shimamoto (Waseda University)

1. Content-Oriented Surveillance System Based on Node Name Routing,
Xin Qi, Zheng Wen and Takuro Sato
2. Multilayered Metamaterial-Enhanced Magnetic Induction Communication Scheme within the context of IoT,
Tojoarisoa Rakotoaritina, Megumi Saito, Zhenni Pan, Jiang Liu and Shigeru Shimamoto

Banquet & Award Ceremony

18:00–20:00, University Small Hall

[Thursday, 20 September](#)

Plenary Talk 3 (Decay Effect on DNA Structures by a Beta Decay)

9:00–10:00, Room-A304

Chair: Takuo Yasunaga (Kyushu Institute of Technology)

Double-strand breaks in genome-sized DNA caused by photo-irradiation, gamma-rays and ultrasound,

Prof. Takahiro Kenmotsu (Doshisha University)

10:00–10:15 Break

Symposium 1 on Numerical Simulation and Visual Analytics of Nonlinear Problems

Session 25, 10:15–11:15, Hall A

Chair: Ayumu Saitoh (Yamagata University)

1. Effectiveness of Generalized Linear Notch Mechanics in View of Stress Gradient,
Wataru Fujisaki, Haruka Iwatsubo and Yoshihiro Takamiya
2. Implicit Eulerian method for transportation of multiple deformable objects,
Kosei Sakakibara, Daisuke Toriu and Satoru Ushijima
3. 3D parallel computation for transportation of gravel particles due to downward water jets,
Hirofumi Yanagi, Daisuke Toriu and Satoru Ushijima

Symposium 3 on Computational Shape Optimization and Related Technique

Session 28, 10:15–11:15, Hall B

Chair: Yasuhide Tsuji (Muroran Institute of Technology)

1. Numerical Shape Optimization by Using a Real-time Simulator for Magneto-static Field,
Deri Yi and Hideki Kawaguchi
2. Topology Optimization of Metamaterial Using Gaussian-Basis Functions,
Fangzhou Ye and Hajime Igarashi
3. Topology Optimization of Rotor in Synchronous Motor by Considering Current Phase Angle and Materials,
Takeo Ishikawa and Yuichiro Suzuki

Symposium 4 on Decay Effect on DNA Structures by a Beta Decay

Invited and Tutorial Talks, 10:15–11:15, Hall C

Chair: Tomoko Mizuguchi (Kyoto Institute of Technology)

1. (Invited) Recent progress of cryo-electron tomography to elucidate life science and material science,
Prof. Takuo Yasunaga (Kyushu Institute of Technology)
2. (Tutorial) Introduction to Geant4 and Geant4-DNA,
Prof. Tsukasa Aso (NIT, Toyama College)

OS3: Complex Networks and Complex Systems

Session 32, 10:15–11:15, Hall D

Chair: Atsushi Tanaka (Yamagata University)

1. Staggered-grid computation of single-point autoignition gasoline engine with colliding pulsed supermulti-jets,
Aya Hosoi, Remi Konagaya, Sota Kawaguchi, Yuya Yamashita, Yasuhiro Sogabe and Ken Naitoh
2. Essential study of influence of rotary valve speed on compression level due to jets colliding in a new high-thermal efficiency engine,
Yuya Yamashita and Ken Naitoh
3. New quasi-stable ratios of physical particles revealed by multi-dimensional Taylor expansion series,
Tomotaka Kobayashi and Ken Naitoh

11:15–11:30 Break

Symposium 1 on Numerical Simulation and Visual Analytics of Nonlinear Problems

Session 26, 11:30–12:30, Hall A

Chair: Wataru Fujisaki (Kyushu Sangyo University)

1. Fully-explicit computational method for compressible natural convection using reduction technique of pressure propagation,
Daisuke Toriu and Satoru Ushijima
2. GPU-based numerical simulations of blood flows in the aorta using stabilized finite element method,
Viet Huynh Quang Huy and Hiroshi Suito
3. The Particle-In-Cell simulation on LEO spacecraft charging and the wake structure using EMSES,
Nizam Ahmad, Hideyuki Usui and Yohei Miyake

Symposium 3 on Computational Shape Optimization and Related Technique

Tutorial Talk, 11:30–12:00, Hall B

Chair: Yasuhide Tsuji (Muroran Institute of Technology)

(Tutorial) Topology Optimization for Electromagnetic devices: Recent topics,
Prof. Kota Watanabe (Muroran Institute of Technology)

Symposium 4 on Decay Effect on DNA Structures by a Beta Decay

Session 30, 11:30–12:30, Hall C

Chair: Takahiro Kenmotsu (Doshisha University)

1. Computational strategy for studying structural change of tritium-substituted macromolecules by a beta decay to helium-3,
Susumu Fujiwara, Hiroaki Nakamura, Haolun Li, Hisanori Miyanishi, Tomoko Mizuguchi, Takuo Yasunaga and Yuji Hatano
2. Study of the dynamics of confined water in silica nanopore using the reactive force field,
Tomoko Mizuguchi, Katsumi Hagita and Susumu Fujiwara
3. Order- N first-principles DFT calculations for large-scale biomolecular systems: Application to DNA

system,

Takao Otsuka, Ayako Nakata, Tsuyoshi Miyazaki and Makoto Taiji

OS3: Complex Networks and Complex Systems

Session 33, 11:30–12:50, Hall D

Chair: Ken Naitoh (Waseda University)

1. Cellular automaton model for automatic driving paradigm shift,
Hiroyuki Maruyama and Atsushi Tanaka
2. Automatic life-stage classification with single animal resolution through the continuous monitoring of drosophila population,
Maki Otori, Ki-Hyeon Seong, Taishi Matsumura, Tetsuya Yuasa and Siu Kang
3. Classification through the deep neural network on the human EEG recording during simple selective behavior and social cognition task,
Kei Kikuchi, Kazunori Hayasaki, Taishi Matsumura, Tetsuya Yuasa and Siu Kang
4. Cortical learning through the spike-timing-dependent plasticity modulated by the intrinsic membrane potential fluctuation,
Taishi Matsumura, Tetsuya Yuasa and Siu Kang

12:30–13:30 Lunch Break

Symposium 1 on Numerical Simulation and Visual Analytics of Nonlinear Problems

Session 27, 13:30–14:10, Hall A

Chair: Kyoko Hasegawa (Ritsumeikan University)

1. Development of a visual analytic system of exploring the failure causes using big log data on HPC systems,
Kazuki Koiso, Naohisa Sakamoto, Nonaka Jorji and Shoji Fumiyoshi
2. Particle Based Volume Rendering using 234 Image Composition,
Yamaoka Yoshiaki, Hayashi Kengo, Sakamoto Naohisa and Nonaka Jorji

Symposium 3 on Computational Shape Optimization and Related Technique

Session 29, 13:30–14:50, Hall B

Chair: Kota Watanabe (Muroran Institute of Technology)

1. A Study on Topology Optimization of Plasmonic Waveguide Device Based on Function Expansion Method and Evolutionary Approach,
Akino Koda and Yasuhide Tsuji
2. Design of Nonlinear Optical Waveguide Devices with Function-Expansion Based Topology Optimization,
Koyo Mori and Yasuhide Tsuji
3. Design of polarization splitter and rotator using function-expansion based topology optimization considering two-layer structure,
Shun Tomioka and Yasuhide Tsuji

4. Efficient Topology Optimization of Optical Waveguide Using Finite Element Method based on Slowly Varying Envelope Approximation,
Tomohiro Tanaka and Yasuhide Tsuji

Regular Session

Session 31, 13:30–14:50, Hall C

Chair: Soichiro Ikuno (Tokyo University of Technology)

1. Feasibility Study of Photovoltaic Generation using Grid Square Statics,
Yoichi Shimazaki
2. Locational Estimation Based on the Low Resolution Images using Feature Detection Methods,
Keisuke Tsuda, Daigo Uenuma, Yousuke Komatsubara, Takeo Miki and Hiroyuki Kamata
3. efpp: A preprocessor for Modern Fortran,
Shin'Ya Hosoyamada and Akira Kageyama
4. Development of CAVELib Compatible Library for HMD-type VR Systems,
Shintaro Kawahara