

# International Symposium on Fiber Science and Technology (ISF2014) Program

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## Plenary Lectures (TFT WEST HALL1000)

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### September 29<sup>th</sup>

9:40 **Opening Ceremony of ISF2014**

*Chairperson: Toshihiro Hirai*

10:10 **Plenary-1**

“AUTEX – Network of European Textile Universities – An accelerator of success”

Dominique C. Adolphe

*President of AUTEX Association*

*Ecole Nationale Supérieure d'Ingénieurs Sud Alsace (ENSISA), France*

*Chairperson: Yoshiharu Kimura*

10:55 **Plenary-2**

“Evaluation of heat stress of firefighter protective clothing under extreme environment”

Kee Jong Yoon

*President of the Korean Fiber Society*

*Dankook University, South Korea*

Lunch (11:40~12:50)

*Chairperson: Hiroki Murase*

12:50 **Plenary-3**

“Functional hybrid fiber materials: design, fabrication and applications”

Zhu Meifang

*Donghua University, China*

*Chairperson: Toshiji Kanaya*

13:35 **Plenary-4**

“Carbon fiber composite materials: developments, commercialization, and applications”

Makoto Endo

*Toray Industries, Inc., Japan*

Break (14:20~14:40)

8 Technical Sessions

### September 30<sup>th</sup>

*Chairperson: Kanji Kajiwara*

9:20 **Plenary-5**

“The new age of polymer, fiber and textile research”

Jon P. Rust

*North Carolina State University, USA*

*Chairperson: Kunihiro Hamada*

10:05 **Plenary-6**

“Innovative technologies for functional modification of textile”

Teruo Hori

*University of Fukui, Japan*

Break (10:50~11:10)

8 Technical Sessions

### October 1<sup>st</sup>

9:20 **Opening of Advanced Fiber Material Symposium**

(Organized by Japan Chemical Fiber Association)

*Chairperson: Takeshi Kikutani*

9:30 **Plenary-7**

“Process development and engineering for high strength cellulose aerogel filaments”

Thomas Gries

*Lehrstuhl für Textilmaschinenbau und Institut für Textiltechnik (ITA) der RWTH Aachen University, Germany*

*Chairperson: Kunio Kimura*

10:10 **Plenary-8**

“Next generation fibers – Are we smarter than molecules?”

Satish Kumar

*Georgia Institute of Technology, USA*

Break (10:50~11:10)

7 Technical Sessions

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### 5 General Sessions

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A (TFT East, 9<sup>th</sup> Floor, Room 909)

G1 Fibers and Polymer Materials

**S. Sakurai, H. Saito, K. Ogino, J. Morikawa,**

*T. Uchida, M. Higa, and K. Tanaka*

*Program Chairs*

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### September 29<sup>th</sup>

*Chairperson: Takeshi Kikutani*

14:40 G1-01 **Keynote** “A hybrid processing method by nanofiber embedding to produce flexible, conductive, transparent films for Flexible Electronics Industry”  
(University of Akron, USA) Miko Cakmak

15:10 G1-02 “Cost-efficient production of custom-made GI-POFs used for illumination, data transmission and sensor”  
(Lehrstuhl für Textilmaschinenbau und Institut für Textiltechnik (ITA) der RWTH Aachen University, Germany) Markus Beckers, Benjamin Glauss, Thomas Gries and Christian-Alexander Bunge

*Chairperson: Miko Cakmak*

15:30 G1-03 “Preparation of single-polymer composites from bicomponent fibers prepared by high-speed melt spinning process”  
(Tokyo Institute of Technology, Japan) Yuan Jing Zhang, Takeshi Kikutani and Wataru Takarada

15:50 G1-04 “Optimization of heat sealing conditions for coextruded multilayer polyolefin film – Influence of sterilization treatment on seal property –”  
(Hosokawa Yoko Co., Ltd., Japan) Toshiharu Iwasaki, Wataru Takarada and Takeshi Kikutani

16:10 G1-05 “Revisit polyester/liquid crystal blending and fiber spinning”  
(Kordsa Global, Turkey) Ozlem Turkarslan, Sezen Gurdag, Emine Guven, Wataru Takarada and Takeshi Kikutani

*Chairperson: Wataru Takarada*

16:30 G1-06 "Spinning of PEN and PEN/PET polymer"  
(Kordsa Global, Turkey) Aslı Ertan and Emine Güven

16:50 G1-07 "Analysis of structure formation in carbon fibers - a new method for process development"  
(Lehrstuhl für Textilmaschinenbau und Institut für Textiltechnik (ITA) der RWTH Aachen University, Germany) Wilhelm Steinmann, Anna-Katharina Saelhoff, Gunnar Seide and Thomas Gries

### September 30<sup>th</sup>

*Chairperson: Kunio Kimura*

11:10 G1-08 "Application of sericin on polyester"  
(DKTE'S Textile and Engineering Institute, India) Aravin Prince Periyasamy and Saatish Lavate

11:30 G1-09 "Growth of N-doped BiOBr nanosheets on carbon fibers for high efficient photocatalytic degradation of organic pollutants under visible light irradiation"  
(Zhejiang Sci Tech University, China) Guohua Jiang and Xia Li

*Chairperson: Hiroaki Yoshimizu*

11:50 G1-10 "New route to modify polyvinyl alcohol"  
(Deakin University, Australia) Ping'an Song, Zhiguang Xu and Qipeng Guo

12:10 G1-11 "Transport properties of charged-mosaic membranes prepared from a fabric structure of poly(vinyl alcohol)-based charged-fibers"  
(Yamaguchi University, Japan) Mitsuru Higa, Atsushi Jikihara, Reina Ohashi, Tetsuro Maeda, Eriko Shimizu, Megumi Nisimura, Yuriko Kakihana and Kenichi Kobayashi

Lunch (12:30~13:40)

*Chairperson: Hiromu Saito*

13:40 G1-12 **Keynote** "Effects of molecule weight in flow-induced polymer crystallization"  
(Kyoto University, Japan) Toshiji Kanaya

14:10 G1-13 "Structure analysis of ultra-high strength polyethylene fibers"  
(Toyobo Co., Ltd., Japan) Yasunori Fukushima, Hiroki Murase and Yoshihiko Teramoto

*Chairperson: Shigeo Asai*

14:30 G1-14 "Humidity-induced reversible and anisotropic structural change of 3D-oriented poly(vinyl alcohol)"  
(Toyota Technological Institute, Japan) Taiyo Yoshioka and Kohji Tashiro

14:50 G1-15 "Preparation of ladder-type polyimidazopyrrolone fibers by reaction-induced crystallization during polymerization"  
(Okayama University, Japan) Mizuho Anabuki, Shinichi Yamazaki and Kunio Kimura

Break (15:10~15:20)

*Chairperson: Keiji Tanaka*

15:20 G1-16 "Reexamination of polymerization of N-carboxy amino acid 54. Consideration on the living polymerization mechanism of amino acid NCAs"

(Fukushima University, Japan) Hitoshi Kanazawa and Aya Inada

15:40 G1-17 "A thermally activated polymerization process of ubiquitin studied by small-angle X-ray scattering (SAXS)"  
(Shinshu University, Japan) Kouichi Inano, Keiichi Yanase, Ryoichi Arai and Takaaki Sato

*Chairperson: Mitsuru Higa*

16:00 G1-18 "Design of water interfaces with well-defined vinyl polymers"  
(Kyushu University, Japan) Yukari Oda, Ayanobu Horinouchi, Toyoaki Hirata, Daisuke Kawaguchi, Norifumi L. Yamada, Shokyoku Kanaoka, Sadahito Aoshima and Keiji Tanaka

16:20 G1-19 "Enantioselectivity of chiral polymer films based on dynamic interface"  
(Kyushu University, Japan) Atsuomi Shundo, Koichiro Hori, Nobuo Kimizuka and Keiji Tanaka

16:40 G1-20 "Application of Xe-129 NMR spectroscopy to the characterization of gas transport properties of polymeric membranes"  
(Nagoya Institute of Technology, Japan) Hiraoki Yoshimizu

### October 1<sup>st</sup>

*Chairperson: Ken Kojio*

11:10 G1-21 "Enhancement and suppress of segregation power in block copolymer solutions by changing composition of solvent mixtures"  
(Nagoya Institute of Technology, Japan) Remi Miyamachi, Akifumi Matsushita, Kengo Nomura and Shigeru Okamoto

11:30 G1-22 "Photonic polymer solutions with refractive index enhanced by selective solvents of different solvent quality"  
(Nagoya Institute of Technology, Japan) Shigeru Okamoto, Koji Ando, Akifumi Matsushita and Itsuki Saito

*Chairperson: Shigeru Okamoto*

11:50 G1-23 "Self-assemblies of main-chain liquid crystalline ABA triblock copolymers"  
(Tokyo Institute of Technology, Japan) Maito Koga, Kohei Abe, Kazunori Sato, Koichi Sakajiri, Junji Watanabe and Masatoshi Tokita

12:10 G1-24 "Microdomain structures of thermoplastic elastomers after mechanical deformation based on small-angle X-ray scattering"  
(Nagasaki University, Japan) Ken Kojio, Genichiro Kawajiri, Takuya Komatsu, Suguru Motokucho and Kohji Yoshinaga

Lunch (12:30~13:40)

*Chairperson: Masatoshi Tokita*

13:40 G1-25 "Could hydrogel fibers replace lycra?"  
(Hong Kong Polytechnic University, Hong Kong, China) Xinkun Lu, Ching Ying Chan, Ka I Lee, Pui Fai Ng and Bin Fei

14:00 G1-26 “Controlled synthesis of tetra-arm star-block copolymers and fabrication of gel with homogeneous network structure”  
(Kyoto University, Japan) Ryohei Ishige, Katsuya Kida, Keita Sakakibara, Kohji Ohno and Yoshinobu Tsujii

14:20 G1-27 “Robust hydrogel reinforced by an addition of imogolite which shows strain-induced reversible isotropic-anisotropic structural transition”  
(Tokyo University of Agriculture and Technology, Japan) Kazuhiro Shikinaka, Tomomi Yokoi, Keisuke Kaneda, Yoshihito Osada, Hiroyasu Masunaga and Kiyotaka Shigehara

*Chairperson: Kazuhiro Shikinaka*

14:40 G1-28 “Swelling of poly(vinyl alcohol) hydrogels accompanying the dye sorption in congo red aqueous solution”  
(Ochanomizu University, Japan) Endang Katmiwati and Tadashi Nakanishi

15:00 G1-29 “Development of novelty functional gelator”  
(Shinshu University, Japan) Zhong Wang, Masahiro Suzuki and Kenji Hanabusa

*Chairperson: Toshiyuki Watanabe*

15:20 G1-30 “Temperature-induced structural modifications and cooperative dynamics of aqueous Poly(N-isopropylacrylamide) solution”  
(Shinshu University, Japan) Keiichi Yanase, Takuya Miyashita, Daisuke Suzuki, Richard Buchner and Takaaki Sato

15:40 G1-31 “Static structure of copolymer microgels comprising poly(N-isopropylacrylamide) and poly(N-isopropylmethacrylamide) studied by small- and wide-angle X-ray scattering”  
(Shinshu University, Japan) Kenshi Amano, Takuma Kureha, Takuya Miyasita, Daisuke Suzuki and Takaaki Sato

16:00 G1-32 “Hydration state analysis of polyethylene glycol in a variety of systems using small angle X-ray scattering and dielectric relaxation spectroscopy”  
(Shinshu University, Japan) Takeshi Akahane, Lok Shrestha, Hiromi Sakai and Takaaki Sato

*Chairperson: Tetsuya Uchida*

16:20 G1-33 “Control of viscosity coefficient in polymer solution by light irradiation”  
(Tokyo University of Agriculture and Technology, Japan) Toshiyuki Watanabe, Ryo Shiraishi and Toshiyuki Shikata

16:40 G1-34 “Design of photoresponsive polymer network for fast response photomechanical soft actuator”  
(Tokyo University of Agriculture and Technology, Japan) Toshiyuki Watanabe and Ryota Ohshima

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G (TFT East, 9<sup>th</sup> Floor, Room 9F)

G1 Fibers and Polymer Materials

**S. Sakurai, H. Saito, K. Ogino, J. Morikawa,**

*T. Uchida, M. Higa, and K. Tanaka*

*Program Chairs*

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**October 1<sup>st</sup>**

*Chairperson: Kenji Ogino*

11:10 G1-35 “Miscibility and optical property of cellulose alkyl ester blends with poly(N-vinyl pyrrolidone-co-methyl methacrylate)”  
(Kyoto University, Japan) Kazuki Sugimura, Yoshikuni Teramoto and Yoshiyuki Nishio

11:30 G1-36 “Chemical modification of cellulose for melt spinning process”  
(Toray Industries, Inc., Japan) Hidekazu Kano, Yoshitaka Aranishi, Yuhei Maeda and Yoshiyuki Nishio

*Chairperson: Yoshiyuki Nishio*

11:50 G1-37 “Polyamide/MQ-resin nanocomposites: synthesis and characterization”  
(DWI an der RWTH Aachen e.V., Germany) Yongliang Zhao

12:10 G1-38 “Quantitative analysis of phase separation structure and mechanical properties of acrylics copolymer / epoxy thermo setting resin compositions”  
(LINTEC Corporation, Japan) Isao Ichikawa, Toshio Sugizaki, Shuichi Akasaka and Shigeo Asai

Lunch (12:30~13:40)

*Chairperson: Shinichi Sakurai*

13:40 G1-39 “The study of the natural weeds in the raw material used to prepare a friendly composite material between water hyacinth and natural shellac”  
(Pathumwan Institute of Technology, Thailand) Pitak Panawan and Manus Srisawade

14:00 G1-40 “Preparation of green composite from rubber tree leave and poly(lactic acid)”  
(Pathumwan Institute of Technology, Thailand) Oitak Panawan, Jedsada Wongon and Prayoon Surin

14:20 G1-41 “Development update and high performance technology of BIOFRONT<sup>®</sup>”  
(Teijin Limited, Japan) Masahiro Iwai, Tomoyoshi Yamamoto and Akihiko Uchiyama

*Chairperson: Junko Morikawa*

14:40 G1-42 “On the way to high-strength poly(3-hydroxybutyrate) (PHB) fibers”  
(EMPA, Switzerland) Rudolf Hufenus, Felix A. Reifler and Urs J. Haenggi

Break (15:00~15:10)

15:10 G1-43 “The study feasibility in production roof tile from bagasse fiber mixed maize husk fiber”  
(Pathumwan Institute of Technology, Thailand) Prayoon Surin and Jedsada Wongon

15:30 G1-44 “Study on efficiency of natural fiber insulation”  
(Pathumwan Institute of Technology, Thailand) Chaiyapruk Apravate, Jessada Wongon and Pitak Panawan

*Chairperson: Shinichi Sakurai*

15:50 G1-45 “The construction board performance of coir composite with Conwood and cement”  
(Pathumwan Institute of Technology, Thailand) Manus Sriswat and Pitak Panawan

16:10 G1-46 “Design and development of coir based adsorbent system for removal of ionic dyes from dye wastewater”  
(Delhi Technological University, India) Anshul Singhal, Shashank Gupta, Pulkit Aggarwal and Roli Purwar

16:30 G1-47 “Effect of acetylation and alkali treatment on the oil sorption behavior of Vietnamese kapok fibres”  
(Ho Chi Minh City University of Technology, Vietnam) Huong Mai Bui and Thi Kim Hue Trinh

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## B (TFT East, 9<sup>th</sup> Floor, Room 908)

### G2 Fiber and Textile Processing

*H. Ito, S. Tanoue, K. Nakane, and M. Sugimoto*

*Program Chairs*

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#### September 29<sup>th</sup>

*Chairperson: Hiroshi Ito*

14:40 G2-01 **Keynote** “Multicomponent synthetic fibers for innovative textile applications”  
(EMPA, Switzerland) Rudolph Hufenus, G. Fortunato, L. Gottardo, and F.A. Reifler

15:10 G2-02 **Keynote** “Twist-gel spinning for efficient production of ultra-strong polymer fibers”  
(Georgia Institute of Technology, USA) Donggang Yao

15:40 G2-03 “Effect of blend ratio on properties of poly(lactic acid)/polyoxymethylene blend fiber”  
(Rajamangala University of Technology Thanyaburi, Thailand) Natee Srisawat, Supaphorn Thumsorn, Sorapong Pavasupree, Weraporn Pivsa-Art, Sommai Pivsa-Art, Toshikazu Umemura and Hiroyuki Hamada

*Chairperson: Hideyuki Uematsu*

16:00 G2-04 “Preparation of ultra-fine fiber of drug-loaded polylactide by laser-electrospinning for controlled release of drug”  
(Miyagi University of Education, Japan) Midori Takasaki, Miku Yoshizawa, Natsumi Fukushi, Sayoko Hoshi, Yuka Yamaguchi, Yutaka Ohkoshi, Toshihiro Hirai and Ikuo Omura

16:20 G2-05 “Influence of chemical bond state of silver and wool fiber on antibacterial effect”  
(The Japan Wool Textile Co., Ltd., Japan) Takayuki Okabe, Kouki Jibu and Hideki Omori

16:40 G2-06 “In situ synthesis and application of cerium oxide nanoparticles on cotton fabric for UV protection and antibacterial properties”  
(Institute of Chemical Technology, India) Mangesh Teli, Parag Bhavsar and Pawan Desai

17:00 G2-07 “Contribution of electrospinning to fabricate functional filaments and fibers”  
(Université Claude Bernard Lyon 1, France) Vincent Salles and Arnaud Brioude

#### September 30<sup>th</sup>

*Chairperson: Naoki Shimada*

11:10 G2-08 “Effect of melt blowing die assembly on fiber formation behavior and web properties”  
(Tokyo Institute of Technology, Japan) Renukarn Ruamsuk, Wataru Takarada and Takeshi Kikutani

11:30 G2-09 “Multi-scale simulation for analysis of melt spinning process”  
(Asahi Kasei Fibers Corporation, Japan) Keiichi Toyoda, Junichi Kojima, Tomoki Ishikawa, Takeshi Aoyagi, Wataru Takarada and Takeshi Kikutani

11:50 G2-10 “Effect of airway angle of swirl nozzle on the performance of ring spun yarn”  
(Jiangnan University, China) Ge Mingqiao, Qiu Hua and Fu Yuye

12:10 G2-11 “Airflow state in the nozzle for an air-jet spinning machine by numerical simulation”  
(University of Fukui, Japan) Thi Viet Bac Phung, Akihiro Yoshida, Hideyuki Uematsu, Yoshiyuki Iemoto and Shuichi Tanoue

Lunch (12:30~13:40)

*Chairperson: Shuichi Tanoue*

13:40 G2-12 **Keynote** “Vortex spins a future of spinning -a history of the machine developments-”  
(Murata Machinery, Ltd., Japan) Tatsumori Matsumoto

14:10 G2-13 **Keynote** “Silk/Cellulose-based biocomposite materials: Utilization of natural fiber wastes”  
(Zhejiang Sci-Tech University, China) Juming Yao

14:40 G2-14 “Poly(butylene terephthalate) fibers produced by laser melt-electrospinning”  
(University of Fukui, Japan) Naoki Shimada, Nobuo Ogata and Koji Nakane

15:00 G2-15 “Effect of cross-sectional configuration on fiber formation behavior in bicomponent melt spinning process”  
(Tokyo Institute of Technology, Japan) Yiwen Chen, Wataru Takarada and Takeshi Kikutani

Break (15:20~15:40)

*Chairperson: Masataka Sugimoto*

15:40 G2-16 “Specific kinetic pathway from mesophase to single crystal of isotactic polypropylene”  
(Kyoto University, Japan) Koji Nishida, Harutoshi Asakawa, Tatsumasa Hirano, Rintaro Inoue and Toshiji Kanaya

16:00 G2-17 “Mutual interaction of two components with different stereo regularity in crystallization of polypropylene blend fibers”  
(Tokyo Institute of Technology, Japan) Kouya Kawai, Yohei Kohri, Wataru Takarada, Tomoaki Takebe, Toshitaka Kanai and Takeshi Kikutani

16:20 G2-18 “Structure and properties of poly(ethylene terephthalate) and polyamide 6 bicomponent fiber for textile application”  
(Rajamangala University of Technology Thanyaburi, Thailand) Suaphorn Thumsorn, Pachara Wanma, Supasit Isan, Siwawat Chanmanee and Natee Srisawat

16:40 G2-19 “Control of polyester fiber orientation at melt spinning line”  
(Toray Co., Ltd., Japan) Yoshitsugu Funatsu

### October 1<sup>st</sup>

*Chairperson: Wataru Takarada*

11:10 G2-20 “Demolding of nanostructured-surface on UV-cured film in roll-to-roll UV nanoimprint process”  
(Yamagata University, Japan) Kentaro Taki, Shunsuke Kondo, Tetsuo Takayama and Hiroshi Ito

11:30 G2-21 “Effect of polytetrafluoroethylene and carbon nanotube on the film processability of polystyrene”  
(University of Fukui, Japan) Hideyuki Uematsu, Masahiro Mori, Yoshiyuki Iemoto and Shuichi Tanoue

11:50 G2-22 “Poly(vinyl alcohol)/zinc oxide nanoparticle hybrid electrospun fiber mats for antibacterial dressings”  
(Yamagata University, Japan) Tongsai Jamnongkan, Sathish K. Sukumaran, Masataka Sugimoto, Tomijiro Hara, Yumiko Takatsuka and Kiyohito Koyama

12:10 G2-23 “Novel type nanofiber mat consisting of Tetra-PEG network”  
(University of Fukui, Japan) Hanako Asai, Muhammad Haziq bin Miswan, Naoki Shimada, Koji Nakane, Takamasa Sakai and Nobuo Ogata

Lunch (12:30~13:40)

*Chairperson: Kentaro Taki*

13:40 G2-24 “Thermal conductivity and properties of polypropylene/magnesium oxide/vapor-grown carbon fiber composites”  
(University of Fukui, Japan) Emilie Oconel, Chihiro Azuma, Hideyuki Uematsu, Yoshiyuki Iemoto and Shuichi Tanoue

14:00 G2-25 “Formation of alumina nanofibers and development of thermal conductive polymer composites using the nanofibers”  
(University of Fukui, Japan) Koji Nakane and Nobuo Ogata

14:20 G2-26 “A study on complex shapes of CFRTP by using commingled yarn fabric”  
(Kanazawa Institute of Technology, Japan) Patcharat Wongsriraksa, Hiroyuki Hasebe, Wataru Okumura, Mitsugu Kimizu, Kiyoshi Uzawa and Isao Kimpara

14:40 G2-27 “Flame retardant nonwovens of shaped PP fibers containing modified-Thai bentonite”  
(National Metal and Materials Technology Center,

Thailand) Chureerat Prahsarn, Nanjaporn Roungpaisan, Natthaphop Suwannamek and Wattana Klinsukhon

15:00 G2-28 Withdrawn

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C (TFT East, 9<sup>th</sup> Floor, Room 9E)

G3 Dyeing, Finishing, Coating and Laminating

*K. Hisada, A. Tsuchida, and Y. Tsujii*

*Program Chairs*

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### September 30<sup>th</sup>

*Chairperson: Akira Tsuchida*

13:40 G3-01 **Keynote** “Fibers for the regenerative medicine”  
(Kyoto University, Japan) Yoshito Ikada

14:10 G3-02 “Upgrading of synthetic fiber materials by nano-scale processing”  
(Toray Industries, Inc., Japan) Yuki Ninomiya, Keiji Takeda and Atsushi Kuwabara

*Chairperson: Yoshinobu Tsujii*

14:30 G3-03 **Keynote** “Electron-beam irradiation technique for textile finishing”  
(Kyoto Institute of Technology, Japan) Satoko Okubayashi

15:00 G3-04 “The effect of sericin on dyeing and ultraviolet protection properties of natural dyes on polyester”  
(National Metal and Material Technology Center, Thailand) Monthon Nakpathom, Nootsara Narumol and Buppha Somboon

*Chairperson: Giuseppe Rosace*

15:20 G3-05 “Dyeing of silk fabric with garcinia dulcis (Roxb.) kurz bark by using post-mordant and pad-dry processes: Studies on metal mordants concentration parameter”  
(Kasetsart University, Thailand) Nattadon Rungruangkitkrai, Rattanaphol Mongkholrattanasit, Nattaya Punrattanasin, Kamolkan Sriharuksa, Monthon Nakpathom and Nuanchan Klaijoy

15:40 G3-06 “Fastness properties of artocarpus lakoocha dyed wool yarn with mordant combinations”  
(Assam Agricultural University, India) Ava Phukan, Rajashree Phukan and Swapna Choudhury Choudhury

*Chairperson: Kenji Hisada*

16:00 G3-07 “The role of ozone micro-bubbles in cotton bleaching”  
(Tokyo Metropolitan Industrial Technology Research Institute, Japan) Ichiro Enomoto, Shin Soeda, Fumi Masuko and Chizuru Mitani

16:20 G3-08 “Multifunctional silica sol-gel finishing for textile fabrics”  
(University of Bergamo, Italy) Giuseppe Rosace, Claudio Colleoni, Ilaria Donelli, Emanuela Guido and Giuliano Freddi

16:20 G3-09 Withdrawn

## October 1<sup>st</sup>

*Chairperson: Aravin Prince Periyasamy*

- 11:10 G3-10 “Lubrication of polyion complex film fabricated from cationic polyelectrolyte and anionic surfactant – Effect of linear and branched polyethylenimine with various molecular weights –”  
(University of Fukui, Japan) Yoshiaki Hirano, Masaki Goto and Kenji Hisada
- 11:30 G3-11 “Relationship between pill generation on wool knit and morphology on the fiber surface”  
(Mori Consultant Engineering Office) Masukuni Mori

*Chairperson: Yoshiaki Hirano*

- 11:50 G3-12 “Pilling resistance of lyocell - Effect of alkali pretreatments with polyfunctional reactive dyes”  
(DKTE'S Textile and Engineering Institute, India) Aravin Prince Periyasamy and Saatish Lavate
- 12:10 G3-13 “The role of Laccifer lacca Kerr. in the UV-protection of silk fabric by using post-mordant and pad-dry processes: Focus on metal mordants concentration property”  
(Rajamangala University of Technology Phra Nakhon, Thailand) Rattanaphol Mongkholrattanasit, Charoon Klaichoi, Nattadon Rungruangkitkrai, Nattaya Punrattanasin, Kamolkan Sriharuksa and Monthon Nakpathom

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D (TFT East, 9<sup>th</sup> Floor, Room 9A)

G4 Textile Science and Engineering

*M. Inoue, L. Bao, and A. Yokoyama*

*Program Chairs*

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## October 1<sup>st</sup>

*Chairperson: Mitsuo Matsudaira*

- 11:10 G4-01 **Keynote** “Wool meets modern consumers' expectations”  
(AgResearch Ltd., New Zealand) Surinder Kumar Tandon
- 11:40 G4-02 “The actual conditions and approach of care for pilling by wearing”  
(Lion Corporation, Japan) Shoko Shogase, Ayumi Niikura, Michiko Uga, Naoya Tamura, Hiroaki Shindo and Takahiro Okamoto

*Chairperson: Mari Inoue*

- 12:00 G4-03 “The cooling effect of perspiration evaporation in microclimate system on human cutaneous comfort”  
(Damietta University, Egypt) Ahmad Tahan
- 12:20 G4-04 “A study of physiological effects of compression garments made of new fabric ‘Elaction PRO<sup>®</sup>’”  
(Asahi-Kasei Fibers Corp., Japan) Junko Deguchi, Shoichi Akita and Kota Tsutsui

Lunch (12:40~13:40)

*Chairperson: Mari Inoue*

- 13:40 G4-05 **Keynote** “Trends of research activities in the fields of textile science and engineering”  
(SCI-TEX, Japan) Tatsuki Matsuo

*Chairperson: Morihiro Yoneda*

- 14:10 G4-06 “Thermally comfortable car seat using random coil structure”  
(Toyobo Co., Ltd., Japan) Hirotaka Harada
- 14:30 G4-07 “Thermal analysis of aerogel treated nonwoven fabrics”  
(Technical University of Liberec, Czech Republic) Rajesh Mishra, Mohanapriya Venkataraman, Jiri Militky, T M Kotresh and Arumugam Veerakumar
- 14:50 G4-08 “The quest for continual growth in textiles: Innovation diversity and organizational resiliency”  
(University of Borås, Sweden) Arun Aneja and Rudrajeet Pal

*Chairperson: Atsushi Yokoyama*

- 15:10 G4-09 “Surface structure and torsion property of cotton-rayon blended vortex yarns”  
(Kyoto Institute of Technology, Japan) Jian Kang, Akihiro Okamoto, Satoru Hirosawa, Sayaka Oda and Sachiko Sukigara
- 15:30 G4-10 “Investigation on objective evaluation of fabric warm/cool feeling by finger sensor method”  
(Nara Women's University, Japan) Morihiro Yoneda and Asako Sumi
- 15:50 G4-11 “Prediction of textile structures thermal insulation”  
(Technical University of Liberec, Czech Republic) Jiri Militky, Dana Kremenakova and Zu Guocheng

*Chairperson: Sachiko Sukigara*

- 16:10 G4-12 “New designed abrasion resistance friction multilayer woven fabric”  
(Toray Industries, Inc., Japan) Keiichi Tonomori, Kenko Yamada, Hiroshi Tsuchikura and Atsushi Kuwabara

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C (TFT East, 9<sup>th</sup> Floor, Room 9E)

G5 Fashion and Clothing Science

*S. Ishimaru and C. Sawatari*

*Program Chairs*

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## October 1<sup>st</sup>

*Chairperson: Sonoko Ishimaru*

- 13:40 G5-01 **Keynote** “Scientific computational interaction design in fashion education”  
(The Hong Kong Polytechnic University, Hong Kong, China) Yi Li
- 14:10 G5-02 “Investigation of the tensile behaviour of Takashima cotton crepe yarns and fabrics under different relative humidity”  
(Kyoto Institute of Technology, Japan) Htet Htet Htike, Tsuyoshi Sugimoto, Hiroko Yokura and Sachiko Sukigara

Chairperson: Yayoi Satsumoto

14:30 G5-03 “Shape factor of flared skirts compared with that of circular fabrics”  
(Kanazawa University, Japan) Mitsuo Matsudaira, Hiroko Yokura, Tomoe Masuda and Minami Wada

14:50 G5-04 “A study on auto-generation color image for fabric based on FFT”  
(Jiangnan University, China) Hongxia Jiang, Jihong Liu and Hongfu Wang

Chairperson: Chie Sawatari

15:10 G5-05 **Keynote** “Evaluation and informatization of textiles used for fashion clothing”  
(Shinshu University, Japan) Masayuki Takatera

15:40 G5-06 “A framework for imbibing sustainability in fashion: Indian perspective”  
(BPS Women University, India) Harinder Pal

Chairperson: Harinder Pal

16:00 G5-07 “Solving algorithm of vehicle routing problem for apparel logistics with time windows”  
(Xi'an Polytechnic University, China) Wang Zan and Liang Jian Fang

16:20 G5-08 “The fashion design and the theory of fractal pattern art”  
(Damietta University, Egypt) Nashwa Nabeel

16:40 G5-09 “Based on the consumption behavior of the clothing store display research”  
(Xi'an Polytechnic University, China) Siyao Cheng

## 9 Special Sessions

(TFT West, HALL1000)

### S1 Advanced Fiber Material Symposium

**A. Oomatsuzawa, M. Fukui, Y. Maeda**

Hideo Yamada, Hiroo Yamada, and H. Hayashi

Program Chairs

Organized by Japan Chemical Fibers Association

\* with simultaneous interpretation in

English and Japanese

## October 1<sup>st</sup>

### 9:20 Opening Remarks

(Japan Chemical Fibers Association) Hitoshi Ochi

### Guest Greetings

(Ministry of Economy, Trade and Industry, Japan)  
Hidenobu Teramura

### Session I

9:30 S1-01 **Plenary** “Process development and engineering for high strength cellulose aerogel filaments”  
(Lehrstuhl für Textilmaschinenbau und Institut für Textiltechnik (ITA) der RWTH Aachen University, Germany) Thomas Gries

10:10 S1-02 **Plenary** “Next generation fibers – Are we smarter than molecules?”  
(Georgia Institute of Technology, USA) Satish Kumar

Break (10:50~11:00)

11:00 S1-03 **Invited** “A future vision for advanced fiber”  
(Fenwis GmbH, Germany) Thomas Strobel

11:20 S1-04 **Invited** “Textiles in building: development and progress”  
(IFTH (Institut Français du textile et de l'habillement), France) Pascal Rumeau

11:40 S1-05 **Invited** “Development and progress in health care”  
(Up-TEX, France) Stephan Verin and Julien Payen

Lunch (12:00~13:00)

### Session II

13:00 S1-06 **Invited** “Space development and advanced fiber”  
(Astronaut) Naoko Yamazaki

### Session III

13:30 S1-07 “Expectations for advanced fiber from the viewpoint of sports science”  
(University of Tsukuba, Japan) Hideki Takagi

13:50 S1-08 “Expectations for advanced fiber from the viewpoint of infrastructure improvement areas”  
(Nishimatsu Construction Co., Ltd., Japan) Katsuya Iwanaga

14:10 S1-09 “Deployment of advanced fiber materials in areas for safety and reassurance”  
(Mitsubishi Rayon Co., Ltd., Japan) Hiroshi Hosokawa

### Session IV

#### 14:30 Panel Discussion:

*Creation of a future with safety, reassurance and vitality using advanced fiber materials*

Coordinator:

(The Society of Fiber Science and Technology, Japan, Tokyo Institute of Technology, Japan)

Takeshi Kikutani

Panelists:

(Ministry of Economy, Trade and Industry, Japan)

Hidenobu Teramura

Three speakers from “Session I” and three speakers from “Session III”

#### 15:50 Closing Greetings

(Japan Chemical Fibers Association) Hideshi Ueda

#### 16:00 Meeting for Exchanging Business Cards

(Venue: Foyer, West Wing, Tokyo Fashion Town, TFT)

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C (TFT East, 9<sup>th</sup> Floor, Room 9E)  
S2 Symposium on Dyeing and Finishing of  
Textiles

**K. Hamada** and **S. Okubayashi**

*Program Chairs*

*Supported by the 120th Committee on Functionalization  
of Textiles and Polymers, Japan Society for the  
Promotion of Science (JSPS)*

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**September 29<sup>th</sup>**

*Chairperson: Teruo Hori*

14:40 S2-01 **Keynote** "Flame retardancy of cotton fabric treated by hybrid phosphorus-silica films"  
(Italian Association of Textile Chemists and Colorists, Italy) Alessandro Gigli, Jenny Alongi, Claudio Colleoni, Emanuela Guido, Giulio Malucelli and Giuseppe Rosace

*Chairperson: Norihiro Inagaki*

15:10 S2-02 **Keynote** "High-speed low-cost plasma activation of textile materials"  
(Masaryk University, Czech Republic) Mirko Černák

*Chairperson: Satoko Okubayashi*

15:40 S2-03 "Preparation of cesium and strontium ions absorbable non-woven fabric by using electron beam grafting"  
(University of Fukui, Japan) Teruo Hori, Tatsuhiro Nishiguchi, Koji Miyazaki and Sumito Kiyooka

*Chairperson: Hiroshi Urakawa*

16:00 S2-04 "Preparation of polyester fabric having thermo-responsive wettability through electron beam graft polymerization with N-isopropyl acrylamide"  
(University of Fukui, Japan) Kazumasa Hirogaki, Kazuki Shimada, Isao Tabata, Kenji Hisada and Teruo Hori

*Chairperson: Akihiko Ouchi*

16:20 S2-05 "Safer hair dyeing by using biobased materials"  
(Kyoto Institute of Technology, Japan) Hidekazu Yasunaga, Takanori Matsubara, Shota Morimoto, Takanori Hagino, Isao Wataoka and Hiroshi Urakawa

16:40 S2-06 "Catechinone hair dyestuff preparation by chemical oxidation technique – condition for highly-efficient production and reaction mechanism –"  
(Kyoto Institute of Technology, Japan) Takanori Matsubara, Isao Wataoka, Hiroshi Urakawa and Hidekazu Yasunaga

*Chairperson: Kazumasa Hirogaki*

17:00 S2-07 "Facile bifunctional dyeing of synthetic fabrics under supercritical carbon dioxide medium. Part (I): Dyeing polyester fabrics with new antibacterial hydrazono-propanenitrile dyes"  
(Damietta University, Egypt) Tarek Abou Elmaaty, Jaehyuk Ma, Fathy El-Taweel, Eman Abd El-Aziz and Satoko Okubayashi

**September 30<sup>th</sup>**

*Chairperson: Kunihiro Hamada*

11:10 S2-08 **Keynote** "Design and preparation of dye chemosensors and related properties"  
(Chungnam National University, South Korea) Young-A Son

*Chairperson: Satoko Okubayashi*

11:40 S2-09 "Novel surface-dyeing agent with a molecular sieve structure for simplified denim dyeing production"  
(The Hong Kong Polytechnic University, Hong Kong, China) Songmin Shang, Ka-lok Chiu, Marcus Chun Wah Yuen and Shouxiang Jiang

*Chairperson: Toru Takagishi*

12:00 S2-10 "Photochemical treatment for the improvement of dyeability of polyester fabrics"  
(National Institute of Advanced Industrial Science and Technology (AIST), Japan) Akihiko Ouchi

12:20 S2-11 "Novel indoline dyes for dye-sensitized solar cell"  
(Gifu University) Masaki Matsui

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D (TFT East, 9<sup>th</sup> Floor, Room 9A)

S3: Flow & Deformation Induced Polymer  
Crystallization

**T. Kanaya, H. Murase, K. Nishida, and Y. Ohkoshi**

*Program Chairs*

*Supported by Institute for Chemical Research,  
Kyoto University*

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**September 29<sup>th</sup>**

*Chairperson: Toshiji Kanaya*

14:40 S3-01 **Keynote** "Precise analysis for shish-kebab structure in uniaxial drawing"  
(Yamagata University, Japan) Go Matsuba

15:10 S3-02 **Keynote** "New scenario of shish-kebab formation in entangled ultrahigh molecular weight polyethylene solutions"  
(Toyobo Co., Ltd., Japan) Hiroki Murase

15:40 S3-03 **Keynote** "Synchrotron X-ray study of extensional flow-induced crystallization in isotactic polypropylene"  
(Stony Brook University, USA) Benjamin S. Hsiao

*Chairperson: Hiroki Murase*

16:10 S3-04 "Precursor in flow-induced polymer crystallization"  
(Kyoto University, Japan) Toshiji Kanaya, Inga Polec, Tetsuaki Fujiwara, Rintaro Inoue, Koji Nishida, Tomohiko Matsuura, Hiroki Ogawa and Noboru Ohta

16:30 S3-05 **Keynote** "Molecular aspects of the formation of shish-kebabs"  
(DSM Ahead B. V., Netherlands) Luigi Balzano



17:00 S3-06 **Keynote** “Shish kebab formation under deformation - Role of long chains, matrix chains and chain structure-”  
(Sumitomo Chemical Co., Ltd., Japan) Yoshinobu Nozue

### September 30<sup>th</sup>

*Chairperson: Sono Sasaki*

11:10 S3-07 “Formation mechanism of kebab formed at above nominal melting temperature after applying shear flow”  
(Kyoto University, Japan) Nobuaki Takahashi, Momoko Murakami, Tomohiko Matsuura, Tadahiko Maeda, Rintaro Inoue, Koji Nishida and Toshiji Kanaya

11:30 S3-08 **Keynote** “Molecular simulations of shear-induced polymer crystal nucleation”  
(Nanjing University, China) Wenbing Hu

12:00 S3-09 **Keynote** “Spin-enhanced polymer crystallization in a polymer blend during spin coating”  
(National Synchrotron Radiation Research Center, Chinese Taipei) U-Ser Jeng

### **Bruker Luncheon Seminar** (12:30~13:40)

“X-ray solutions for characterizing polymers”  
(Bruker AXS GmbH, Germany) Geert Vanhoyland

*Chairperson: Yutaka Ohkoshi*

13:40 S3-10 **Keynote** “Influence of shearing on composition of copolyesters prepared by phase separation during polymerization”  
(Okayama University, Japan) Kunio Kimura

14:10 S3-11 “Crystallization behaviors of polymers in spin-coating film-forming processes investigated by grazing-incidence X-ray scattering using synchrotron radiation”  
(Kyoto Institute of Technology, Japan) Sono Sasaki, Ryosuke Hata, Yuki Tsuji, Jiro Hoshiba, Shinichi Sakurai, Takaaki Hikima, Hiroyasu Masunaga, Kohji Tashiro and Masaki Takata

*Chairperson: Wenbing Hu*

14:30 S3-12 Withdrawn

14:50 S3-13 “Kinetics of crystallization and stress relaxation in strained natural rubber network”  
(Kyoto University, Japan) Masatoshi Tosaka

15:10 S3-14 **Keynote** “Deformation induced crystallization of polyester materials: studies on the structural evolution mechanisms of PEN, PET and PET nanocomposites under uniaxial deformation”  
(University of Minho, Portugal) Carla I. Martins

*Chairperson: U-Ser Jeng*

15:40 S3-15 **Keynote** “Structure development in the continuous fiber drawing process”  
(Shinshu University, Japan) Yutaka Ohkoshi

16:10 S3-16 “Fiber structure development in laser-heated drawing of nylon 6 fiber”  
(Shinshu University, Japan) KyoungHou Kim, Yutaka Ohkoshi, Akira Wakasugi, Masato Masuda and Yuhei Maeda

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E (TFT East 9F<sup>th</sup> Floor, Room 901)

S4: Smart Textiles / Nanofibers

*M. Kotaki, M. Kimura, and I. S. Kim*

*Program Chairs*

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### September 29<sup>th</sup>

*Chairperson: Mutsumi Kimura*

14:40 S4-01 **Keynote** “Teaching Cotton New Tricks: Molecular strategies for making smart cotton”  
(Cornell University, USA) Juan P. Hinestroza

15:10 S4-02 **Keynote** “Silk fibroin nanofibers for biomedical application”  
(Seoul National University, South Korea) Ki Hoon Lee

*Chairperson: Hidetoshi Matsumoto*

15:40 S4-03 Withdrawn

16:00 S4-04 “The development of the nano filaments “Nanofront<sup>®</sup>” and nanofiber products”  
(Teijin Limited, Japan) Noritaka Ban

16:20 S4-05 “Preparation and characterization of thermoplastic polymer nanofibers and membranes”  
(Donghua University, China) Dandan Xu, Keying Zhu and Ru Xiao

16:40 S4-06 “High-throughput fabrications, functionalizations and applications of thermoplastic nano-fibers and nanofibrous membranes”  
(University of California, Davis, USA) Gang Sun and Jing Zhu

17:00 S4-07 “Bulky quaternary alkyl ammoniums with high degrees of dissociation enhance the dispersibility of charged nanocellulose in solvents”  
(The University of Tokyo, Japan) Michiko Shimizu, Tsuguyuki Saito, Hayaka Fukuzumi and Akira Isogai

### September 30<sup>th</sup>

*Chairperson: Midori Takasaki*

11:10 S4-08 **Keynote** “The grand challenge of industrialization of the “QMONOS” synthetic spider silk”  
(Spiber Inc., Japan) Junichi Sugahara and Kazuhide Sekiyama

*\*Supported by the Strategic Research Committee for Nanofiber Technology, the Society of Fiber Science and Technology, Japan*

11:40 S4-09 “Stress induced structure change of electrospun poly(butylene terephthalate) fibers under uni-axial stretching”  
(Kyushu University, Japan) Hirofumi Kabayama, Yuji Higaki and Atsushi Takahara

12:00 S4-10 “pH-Sensitive nanofibres based on the electrospinning of polycaprolactone and polycaprolactone/chitosan blends”  
(Ghent University, Belgium) Karen De Clerck and Iline Steyaert

- 12:20 S4-11 “Novel nanofiber membrane sensor with the coordinate function of destroy and detect bacterium designed by the template printing”  
(Wuhan Textile University, China) Mufang Li, Qinghua Zhao, Ying Lu and Dong Wang

Lunch (12:40~13:40)

*Chairperson: Ick Soo Kim*

- 13:40 S4-12 **Keynote** “Innovation and up-scaling of smart, green and customized fibers for functionalized textiles: success stories of IFTH”  
(Institut Français Textile Habillement, France) Pascal Rumeau
- 14:10 S4-13 **Keynote** “Polymer actuators as energy harvesters, possible contribution to the textile community”  
(Université de Lyon, France) Daniel Guyomar
- 14:40 S4-14 “Hierarchically structured and highly hydrophilic nanoporous membrane for lithium-ion battery separator based on poly(vinyl alcohol-co-ethylene) nanofibers coating on poly(ethylene terephthalate) nonwoven”  
(Wuhan Textile University, China) Qiongzhen Liu, Ming Xia, Zhou Zhou, Yifei Tao, Mufang Li, Ke Liu and Dong Wang
- 15:00 S4-15 “A novel textile spherical solar cell array”  
(Industrial Technology Center of Fukui Prefecture, Japan) Atuji Masuda, Tetsuhiko Murakami, Norio Sasaguchi, Takahiro Tsuji, Josuke Nakata, Hidetoshi Nakamura, Soichiro Ohtani, Ikuo Inagawa, Norifumi Nagatomo, Ryuichi Yoshioka, Tomoaki Harii and Yoshihiro Iwasaki

*Chairperson: TBD*

- 15:20 S4-16 “Electrical function of dielectric PVC gel - electro optical function -”  
(Shinshu University, Japan) Hiromu Sato and Toshihiro Hirai
- 15:40 S4-17 “Percolation in transparent and conducting two-dimensional nanowire networks”  
(Tokyo Institute of Technology, Japan) Keisuke Azuma, Koichi Sakajiri, Hidetoshi Matsumoto, Sungmin Kang, Junji Watanabe and Masatoshi Tokita
- 16:00 S4-18 “Analysis of sound absorption characteristics of silica nanofiber sheet”  
(Tokyo Institute of Technology, Japan) Shuichi Akasaka, Takahisa Kato, Hidetoshi Matsumoto and Shigeo Asai
- 16:20 S4-19 “Microwave absorption behavior of poly(vinyl alcohol)/multiwall carbon nanotube composite thin film and nanofiber layers”  
(Islamic Azad University, Iran) Aminoddin Haji, Golestan Salimbeygi, Ahmad Mousavi Shoushtari and Komeil Nasouri
- 16:40 S4-20 “Preparation of nanocomposite fibers based on cellulose and graphene nanoplatelets using ionic liquids”  
(Islamic Azad University, Iran) Shaya Mahmoudian, Muhammad Imran and Mohammad Reza Sazegar

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F (TFT East, 9<sup>th</sup> Floor, Room 902)  
S5 Bio-Based and Biomedical Materials  
*T. Iwata, H. Yamane, K. Ohkawa,  
T. Yamamoka, M. Kunioka, and T. Kitaoka  
Program Chairs*

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**September 29<sup>th</sup>**

*Chairperson: Takuya Kitaoka*

- 14:40 S5-01 **Keynote** “New cellulosic architectures: from 3D to 2D material”  
(Aalto University, Finland) Eero Kontturi
- 15:10 S5-02 “Surface reactivity in an aqueous system of bio-nanofibers prepared by the aqueous counter collision method”  
(Kyushu University, Japan) Shingo Yokota and Tetsuo Kondo
- 15:30 S5-03 “Nanocellulose is a bio-based reinforcement for biocomposites”  
(Hanyang University, South Korea) Seong Hun Kim and Sang Ho Park
- 15:50 S5-04 “Structural stability of the isolated molecular chain sheets composing the crystal structures of cellulose allomorphs: a DFT study.”  
(Miyazaki University, Japan) Takuya Uto and Toshifumi Yui

*Chairperson: Eero Kontturi*

- 16:10 S5-05 “A novel strategy for the synthesis of glycolipid-based building blocks used in carbohydrate materials”  
(Tohoku University, Japan) Gefei Li, Masato Noguchi, Marina Nagaki and Shin-ichiro Shoda
- 16:30 S5-06 “Superior reinforcement effect of cellulose nanofibrils in regenerated cellulose matrix”  
(The University of Tokyo, Japan) Quanling Yang, Tsuguyuki Saito and Akira Isogai
- 16:50 S5-07 “Development of the new preliminary treatment for cellulose fiber”  
(Yamagata University, Japan) Ryoichiro Shimura, Ichiro Kano, Tomonori Koda, Ken Miyata, Taichi Nishio and Akihiro Nishioka

**September 30<sup>th</sup>**

*Chairperson: Kousaku Ohkawa*

- 11:10 S5-08 **Keynote** “Functional fibrous materials based on silkworm silk”  
(Soochow University, China) Ke-Qin Zhang
- 11:40 S5-09 “NMR study of Ti binding peptides for the Ti implant surface modification”  
(University of Fukui, Japan) Yu Suzuki and Tetsuo Asakura
- 12:00 S5-10 “Cellular immune responses via TLR-mediated signaling on glyco-decorated biointerfaces”  
(Kyushu University, Japan) Fumi Uemura and Takuya Kitaoka

12:20 S5-11 “Oriented immobilization of enzyme on the electrode for efficient electron transfer and its application for biofuel cell”  
(University of Fukui, Japan) Shin-ichiro Suye, Toshiki Uchii, Ayako Koutou, Takenori Satomura, Haruhiko Sakuraba, Toshihisa Ohshima and Hiroaki Sakamoto

Lunch (12:40~13:40)

*Chairperson: Hideki Yamane*

13:40 S5-12 **Keynote** “Stimuli-responsive biomaterials for local drug and gene delivery”  
(The University of Memphis, USA) Tomoko Fujiwara

14:10 S5-13 “Crystal structures and phase transition behaviors of poly(lactic acid) and its stereocomplex”  
(Toyota Technological Institute, Japan) Kohji Tashiro, Kaewkan Wasanasuk, Naoto Kouno and Hideto Tsuji

14:30 S5-14 “Fabrication of thermoplastic flexible films of chitin butyrate/poly( $\epsilon$ -caprolactone) blends and improvement of cytocompatibility by alkaline treatment”  
(Kyoto University, Japan) Hiroki Hashiwaki, Yoshikuni Teramoto and Yoshiyuki Nishio

*Chairperson: Ke-Qin Zhang*

14:50 S5-15 “Positioning biopolymers in the textile process chain”  
(Lehrstuhl für Textilmaschinenbau und Institut für Textiltechnik (ITA) der RWTH Aachen University, Germany) Pavan Kumar Manvi, Benjamin Glauß, Gunnar Seide and Thomas Gries

15:10 S5-16 “High performance fibers from microbial polyesters and polysaccharide derivatives”  
(The University of Tokyo, Japan) Tadahisa Iwata

15:30 S5-17 “Structural modifications of poly(butylene succinate): a biobased and biodegradable polymer for the preparation of melt-spun fibers”  
(INSA-Lyon, France) Marie Vandesteene, Françoise Fenouillot, Alain Rousseau and Nadège Boucard

*Chairperson: Tomoko Fujiwara*

15:50 S5-18 “Crystallization behavior, mechanical properties and highly ordered structure of P(3HB)/UHMW-P(3HB) blend fiber: effect of the addition of UHMW-P(3HB)”  
(The University of Tokyo, Japan) Taizo Kabe, Takeharu Tsuge, Takaaki Hikima, Masaki Takata and Tadahisa Iwata

16:10 S5-19 “EcoLASTANE: A novel technology for producing bio-based synthetic textile fibres from biomass-derived furanic monomers”  
(Techtera, France) Bruno Mougin, Daniel de la Puente and Maria del Carmen Maestre

16:30 S5-20 “Effect of processing conditions on crystallization behavior of PHBH in high-speed melt spinning process”  
(Tokyo Institute of Technology, Japan) Qing Qin, Wataru Takarada and Takeshi Kikutani

**October 1<sup>st</sup>**

*Chairperson: Masao Kunioka*

11:10 S5-21 “Synthesis and characterization of fully biomass-based liquid crystalline copolyesters”  
(Tokyo University of Agriculture and Technology, Japan) Hong Sun and Kenji Ogino

11:30 S5-22 “Molecular and thermal properties of heat-resistant polyesters prepared from plant-derived aromatic hydroxy acids”  
(The University of Tokyo, Japan) Daisuke Ishii and Tadahisa Iwata

11:50 S5-23 “Local delivery of sustained aspirin via hybrid stent/biodegradable nanofibers”  
(Chang Gung University, Chinese Taipei) Cheng-Hung Lee, Yu-Huang Lin and Shih-Jung Liu

12:10 S5-24 “Sol-gel transition of the mixed aqueous dispersions consisting of polylactide-poly(ethylene glycol) diblock and triblock copolymers: Tuning of gel properties by chain-extension and improved applicability as cell-injectable scaffolds”  
(Kyoto Institute of Technology, Japan) Yu-I Hsu, Kazunari Masutani, Takashi Aoki, Tetsuji Yamaoka and Yoshiharu Kimura

Lunch (12:30~13:40)

*Chairperson: Tadahisa Iwata*

13:40 S5-25 “Study of amorphosization mechanism for rice starch as bio-based material by original milling system”  
(Yamagata University, Japan) Seigo Murakami, Ken Miyata, Tomonori Koda, Taichi Nishio, Akihiro Nishioka and Naoko Fujita

14:00 S5-26 “Development of hybrid materials by using silyl-terminated poly(lactide)s”  
(Kyoto Institute of Technology, Japan) Jung-Yub Hyun and Yoshiharu Kimura

14:20 S5-27 “Biomimetic alignment and responses of myoblast cells on glyco-clustered biointerfaces with micropatterned geometries”  
(Kyushu University, Japan) Pornthida Poosala and Takuya Kitaoka

*Chairperson: Kazuya Sawada*

14:40 S5-28 **Keynote** “An offensive strategy for establishing antithrombogenicity of small-diameter blood vessels”  
(National Cerebral and Cardiovascular Center (NCVC), Japan) Tetsuji Yamaoka

15:10 S5-29 “Development of porous nanofibrous poly-L-lactide scaffolds in supercritical CO<sub>2</sub>”  
(Huaqiao University, China) Ai-Zheng Chen, Ai-Hua Deng and Shi-Bin Wang

15:30 S5-30 “Capacity of polyurethane elastomers fibers as a drug delivery system”  
(University of Fukui, Japan) Onon Batnyam, Satoshi Fujita, Chih-Wei Chou and Shin-ichiro Suye

15:50 S5-31 “Protein-protein interaction in human hemoglobin solution and its implication for functionality of artificial red cells (hemoglobin vesicles)”  
(Shinshu University, Japan) Takaaki Sato, Otto Glatter and Hiromi Sakai

*Chairperson: Tetsuji Yamaoka*

- 16:10 S5-32 “AFM observation of polyurethane nanofibers prepared by electrospinning”  
(University of Fukui, Japan) Hiroaki Sakamoto, Hitoshi Asakawa, Takeshi Fukuma, Satoshi Fujita and Shin-ichiro Suye
- 16:30 S5-33 “Electrospun gelatin nanofibrous scaffolds for corneal keratocyte cultivation”  
(Chang Gung University, Chinese Taipei) Jui-Yang Lai
- 16:50 S5-34 “Cell culture on the wool-derived keratin scaffold”  
(Osaka Seikei College, Japan) Kazuya Sawada, Hiroki Goto and Toshiya Fujisato

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G (TFT East, 9th Floor, Room 9F)

S6 Composites and Industrial Textiles

*M. Shioya, A. Nakai, and S. Asai*

*Program Chairs*

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**September 30<sup>th</sup>**

*Chairperson: Masatoshi Shioya*

- 16:10 S6-01 “The control of pore sizes in porous carbon fiber and its microwave absorption as an absorbent in epoxy composites”  
(Donghua University, China) Guang Li, Shenglin Yang, Junhong Jin and Jianming Jiang
- 16:30 S6-02 **Keynote** “Gas barrier properties improvement by aligning Fe<sub>3</sub>O<sub>4</sub> / graphite nanoplatelets through a low magnetic field”  
(Harbin Institute of Technology, China) Weicheng Jiao

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E (TFT East, 9th Floor, Room 901)

S6 Composites and Industrial Textiles

*M. Shioya, A. Nakai, and S. Asai*

*Program Chairs*

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**October 1<sup>st</sup>**

*Chairperson: Masatoshi Shioya*

- 11:10 S6-03 “Fabrication of CFRP pipe with non-crimp fiber structure for higher productivity”  
(Gifu University, Japan) Tadashi Uozumi, Motohiro Tanigawa, Tatsuhiko Miura, Akio Ohtani and Asami Nakai

*Chairperson: Akio Ohtani*

- 11:30 S6-04 “Effects of press molding conditions on mechanical properties of carbon fiber fabric reinforced polycarbonate sheets”  
(Kanazawa Institute of Technology, Japan) Osuke Ishida, Mitsugu Kimizu, Wataru Okumura and Kiyoshi Uzawa
- 11:50 S6-05 “Effects of content of maleic acid on mechanical properties of carbon fiber fabric reinforced polypropylene sheets”  
(Industrial Research Institute of Ishikawa, Japan)

Wataru Okumura, Hiroyuki Hasebe, Mitsugu Kimizu, Ohsuke Ishida and Hiroshi Saito

- 12:10 S6-06 “Mechanical properties of steel fibres knitted fabric”  
(KU Leuven, Belgium) Marcin Barburski and Stepan V. Lomov

Lunch (12:30~13:40)

*Chairperson: Asami Nakai*

- 13:40 S6-07 “Facile prepared PVA-co-PE nanofiber net membrane for high efficiency air filtration”  
(Wuhan Textile University, China) Ke Liu, Zuan Xiao, Jiahui Chen, Pengfei Ma, Mufang Li, Qiongzhen Liu and Dong Wang
- 14:00 S6-08 “Effects of needling parameters and weight per unit area on the puncture resistance of geotextile nonwoven fabrics”  
(Yazd University, Iran) Hossein Rahimi, Saeid Fattahi and Hasan Mashroteh
- 14:20 S6-09 **Keynote** “Effect of various fiber densities on mechanical properties of biaxial warp knitted textile composites” (Ondokuz Mayıs University, Turkey) Özgür Demircan

*Chairperson: Shigeo Asai*

- 14:50 S6-10 **Keynote** “Filler network formation induced by electric field and its physical properties of nanodiamond composites”  
(Tokyo Institute of Technology, Japan) Shuichi Akasaka
- 15:20 S6-11 “Cellulose nanofiber reinforced resin composite materials by using novel polymer dispersants”  
(Kyoto University, Japan) Keita Sakakibara, Yoshinobu Tsujii and Hiroyuki Yano
- 15:40 S6-12 “Preparation of biodegradable composite from water hyacinth reinforced poly(lactic acid)”  
(Pathumwan Institute of Technology, Thailand) Jessada Wong On, Prayoon Surin and Supaphorn Thumsorn

*Chairperson: Keita Sakakibara*

- 16:00 S6-13 “Green composites from textile waste: Thermo-mechanical characterization”  
(Technical University of Liberec, Czech Republic) Rajesh Mishra, Bijoy Kumar Behera, Jiri Militky, Arumugam Veerakumar and Mohanapriya Venkataraman
- 16:20 S6-14 “High performance polyetherimide (PEI) fiber & composite materials”  
(Kuraray Co., Ltd., Japan) Munenori Kumagai, Akihiro Uehata, Yosuke Washitake and Ryohei Endo
- 16:40 S6-15 “Mechanical properties of multi-layer 3D woven composites”  
(Gifu University, Japan) Akio Ohtani, Hitomi Kitamura, Masayuki Kitamura and Asami Nakai

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G (TFT East, 9th Floor, Room 9F)  
S7 International Conference on Advanced  
Fiber/Textile Materials

**K. Hamada**

*Program Chair*

*Supported by Shinshu University Advanced Leading  
Graduate Program*

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**September 29<sup>th</sup>**

*Chairperson: Shigeru Inui*

14:40 S7-01 “Quantitative evaluation of fabric surface  
fittability”  
(Shinshu University, Japan) Tomoya Suzuki,  
KyoungOk Kim and Masayuki Takatera

15:00 S7-02 “Quantitative analysis of textile products using  
infrared spectroscopy and moving window partial least  
squares regression analysis”  
(Shinshu University, Japan) Shogo Tomii, Hiroaki  
Ishizawa, Shouhei Koyama and Mika Morishima

15:20 S7-03 “Evaluation of tactile sensation by skin of the  
knitted fabric with polypropylene blended yarn”  
(Shinshu University, Japan) Hideaki Mizuhashi,  
Masayoshi Kamijo, Hiroaki Yoshida and Masahiko  
Kubo

15:40 S7-04 “Estimation of fabric bending rigidities in any  
directions based on yarn properties”  
(Shinshu University, Japan) Julie Peiffer, KyoungOk  
Kim and Masayuki Takatera

Break (16:00~16:20)

*Chairperson: Hiroaki Ishizawa*

16:20 S7-05 “Relationship between physical properties and  
fabric hand of denim”  
(Shinshu University, Japan) Atsushi Kawamura,  
KyoungOk Kim and Masayuki Takatera

16:40 S7-06 “Measurement of Poisson’s ratio of yarn”  
(Shinshu University, Japan) Tamotsu Arichi,  
KyoungOk Kim and Masayuki Takatera

17:00 S7-07 “Computer aided individual pattern making for a  
jacket, considering ease allowance and silhouette”  
(Shinshu University, Japan) Noriaki Innami,  
KyoungOk Kim and Masayuki Takatera

**September 30<sup>th</sup>**

*Chairperson: Hiroyuki Kanai*

11:10 S7-08 “The influence of shape memory alloy wires and  
elastomeric yarns in tubular knit structures”  
(Universidade Federal do Rio Grande do Norte, Brazil)  
Jose Ivan Medeiros, Raul Fangueiro, Juliana Cruz, Jose  
Heriberto Nascimento, Fernando Oliveira and Nilson  
Casimiro Pereira

11:30 S7-09 “Study on improvement of compression  
performance of UHMWPE fiber reinforced plastic”  
(Shinshu University, Japan) Fangtao Ruan, Limin Bao  
and Yukinari Okuyama

11:50 S7-10 “Basis study on systolic blood pressure

measurement by using FBG sensors”

(Shinshu University, Japan) Tsubasa Takagi, Hiroaki  
Ishizawa, Masaaki Niimura, Shouhei Koyama, Yuki  
Miyouchi and Yui Katsuragawa

12:10 S7-11 “Smart gel materials for optical devices”  
(Yamagata University, Japan) Jin Gong, Yosuke  
Watanabe, Akihiro Kumagai, Masanori Arai and  
Hidemitsu Furukawa

Lunch (12:30~13:40)

*Chairperson: Masayuki Takatera*

13:40 S7-12 **Keynote** “Engineering the transport properties of  
fibrous materials”  
(Cornell University, USA) Jintu Fan

*Chairperson: Hideaki Morikawa*

14:10 S7-13 **Keynote** “Structural functionalization of woven  
fabrics”  
(University of Ljubljana, Slovenia) Krste Dimitrovski

*Chairperson: Koji Abe*

14:40 S7-14 **Keynote** “Bio-directed synthesis and  
stabilization of silver nanoparticles using pomegranate”  
(University of Twente, Netherlands) Victoria Dutschk

*Chairperson: Mikihiro Miura*

15:10 S7-15 **Keynote** “Characterization of side emitting  
polymeric optical fibres”  
(Technical University of Liberec, Czech Republic) Jiri  
Militký

*Chairperson: Toshihiro Hirai*

15:40 S7-16 **Keynote** “Functionalized fibers used as sensors  
and actuators”  
(ENSAIT, France) Vladan Koncar

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H (TFT East, 9th Floor, Room 910)

S8 Functional Textiles

**Y. Kawahara and A. Takeno**

*Program Chairs*

*Supported by Kanto Branch, The Textile Machinery  
Society of Japan*

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**September 29<sup>th</sup>**

*Chairperson: Yasushi Tamada*

14:40 S8-01 “New developments of the Dyneema<sup>®</sup> ultra high  
molecular weight polyethylene fiber”  
(DSM Dyneema, Netherlands) Harm van der Werff,  
Martin Vlasblom, Luigi Balzano, Tom Engels, Ulrich  
Heisserer, Filip Oosterlinck and Betty Coussens

15:00 S8-02 “Influence of ambient conditions on deodorant  
property of activated carbon fiber”  
(Otsu Women’s University, Japan) Chiyomi  
Mizutani, Mariya P. Bivolarova, Arsen K. Melikov,  
Zhecho D. Bolashukov, Tomonori Sakoi and Kanji  
Kajiwara

*Chairperson: Yutaka Kawahara*

15:20 S8-03 **Keynote** “Fibers for nonwoven fabrics”  
(Philipps University of Marburg, Germany) Andreas K.  
Schaper

15:50 S8-04 “The effects of mildly acidic polyester fibers on human skin”  
(Teijin Frontier Co., Ltd., Japan) Naoki Horikawa, Chiyomi Mizutani, Momoe Ukaji and Kanji Kajiwara

*Chairperson: Chiyomi Mizutani*

16:10 S8-05 “The outermost surface analysis of silk fibroin films and electrospun fibers treated under different ethanol-treatment conditions used in biomaterial preparation”  
(Toyama Industrial Technology Center, Japan) Dohiko Terada, Shinya Hattori, Hisatoshi Kobayashi and Yasushi Tamada

16:30 S8-06 “Modification of polylactic acid fibres surface with ferulic acid”  
(Lodz University of Technology, Poland) Dorota Wojciechowska, Lucyna Herczyńska, Barbara Lipp-Symonowicz and Michał Puchalski

16:50 S8-07 “Plasma treatment: A versatile means for surface modification of polymers and textiles”  
(Islamic Azad University, Birjand Branch, Iran) Aminoddin Haji

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H (TFT East, 9th Floor, Room 910)

S9: Neo Fiber Technology

**T. Aoki**

*Program Chair*

*Supported by Kyoto Institute of Technology*

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poly(lactide)s via Diels-Alder reaction”  
(Kyoto Institute of Technology, Japan) Kazunari Masutani and Yoshiharu Kimura

15:00 S9-07 “Die drawing of poly(lactic acid) fibers”  
(Kyoto Institute of Technology, Japan) Hideki Yamane, Shin Sasaki and Jae-Chang Lee

*Chairperson: Takashi Aoki*

15:20 S9-08 **Keynote** “Fabrication of electrospun nanofiber composite membrane and its potential application”  
(University of Malaya, Malaysia) Amalina Muhammad Afifi, Sepehr Talebian, Umma Habiba, Ang Bee Chin and Hossein M. Khanlou

15:50 S9-09 **Keynote** “Development of bio-ethanol manufacturing technique with energy saving from cellulosic fiber waste” (Hyogo Prefectural Institute of Technology, Japan) Shigeyuki Nakano and Tadashi Uragami

*Chairperson: Hideki Yamane*

16:20 S9-10 “Study on the structure of celluloses dissolved in ionic liquids”  
(University of Natural Resources and Life Sciences, Vienna, Austria) Mitsuharu Koide, Shiori Shono, Isao Wataoka, Ute Henniges, Antje Potthast, Hiroshi Urakawa and Thomas Rosenau

16:40 S9-11 “Characteristics of DNA-based polyion complexes”  
(Kyoto Institute of Technology, Japan) Takashi Aoki and Daiki Isobe

**September 30<sup>th</sup>**

*Chairperson: Yoshiharu Kimura*

11:10 S9-01 **Keynote** “Synthesis and characterization of biobased copolyester containing isosorbide”  
(Hanyang University, South Korea) Won Jae Yoon, Sung Yeon Hwang, Jun Mo Koo and Seung Soon Im

11:40 S9-02 **Keynote** “Natural fibres for structural composite applications - concepts and opportunities”  
(University of Borås, Sweden) Mikael Skrifvars

*Chairperson: Isao Wataoka*

12:10 S9-03 “Flow behavior for composites of hydroxypropyl cellulose and nano-fibres”  
(Kyoto Institute of Technology, Japan) Katsufumi Tanaka and Haruki Kobayashi

Lunch (12:30~13:40)

*Chairperson: Hiroshi Urakawa*

13:40 S9-04 **Keynote** “Silk graft copolymerization regulated by tailor-made radicals released from chain transfer agent”  
(Zhejiang Sci-Tech University, China) Lei Yang, Hui Jiang and Yifeng Shen

14:10 S9-05 **Keynote** “PLA based composite technologies for engineering applications”  
(Indian Institute of Technology Guwahati, India) Vimal Katiyar

*Chairperson: Katsufumi Tanaka*

14:40 S9-06 “Fiber formation of the terminal modified