IRC
Impact Research Communications

PROGRAM

AdvOptix
ADVANCES IN OPTICS AND PHOTONICS

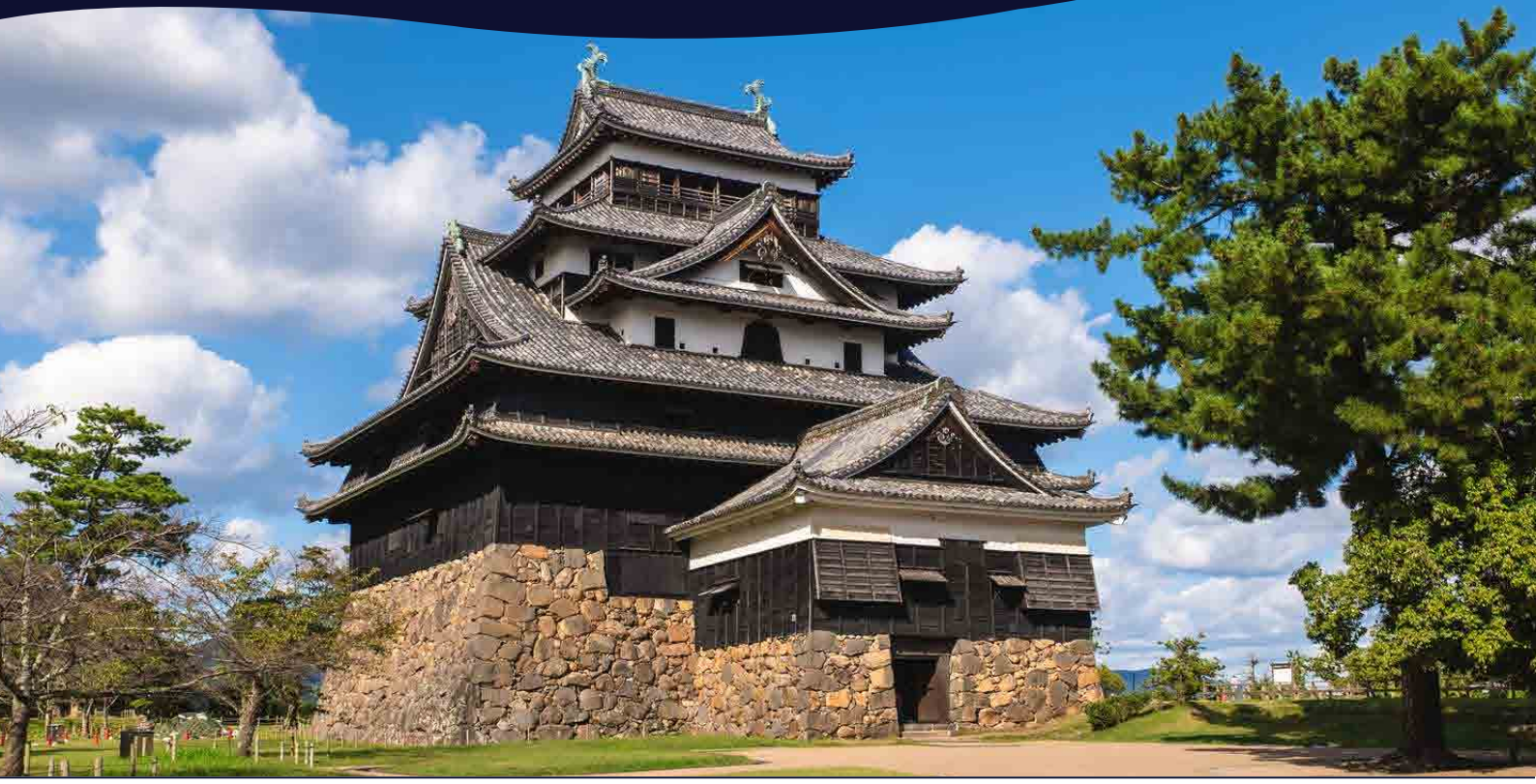
IRC Presents

Advances in Optics and Photonics

An International Conference

May 25-27, 2026

Kunibiki Messe (Shimane Prefectural Convention Center)
1-2-1 Gakuen Minami Matsue City, Shimane, JAPAN



Impact Research Communications
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DAY-1

Monday, May 25, 2026
Room No: 501

07:30-08:20 Registrations & Badge pick-up @ Foyer

08:20-08:30 Opening Remarks by **Prof. Koji Sugioka,** *RIKEN Center for Advanced Photonics, Japan*

Plenary-Keynotes Session - I

Chair: **Felix Sima,** *National Institute for Lasers, Plasma and Radiation Physics, Romania*

08:30-09:00 **Iam Choon Khoo,** *Pennsylvania State University, USA*
Liquid crystals for ultrafast photonics and neuromorphic optical computing applications

09:00-09:30 **Jianrong Qiu,** *Zhejiang University, China*
Fs laser induced new phenomena in transparent dielectrics - mechanisms and applications

09:30-10:00 **Ken-ichi Ueda,** *University of Electro-Communications, Japan*
Laser R&D experiences since 1968 – liquid laser to ceramic laser

10:00-10:30 **Koji Sugioka,** *RIKEN Center for Advanced Photonics, Japan*
Ultrafast laser volume and 3D processing of transparent materials

10:30-10:50 **Coffee Break** **@ Foyer**

Symposium : Advanced Laser Processing: Fundamentals and Applications - Part I

Chair: **Yves Bellouard,** *Ecole Polytechnique Fédérale de Lausanne, Switzerland*

10:50-11:10 **Takeshi Tsuji,** *Shimane University, Japan*
Efficient laser drilling using low-energy long pulses of a conventional Nd:YAG laser

11:10-11:30 **Felix Sima,** *National Institute for Lasers, Plasma and Radiation Physics, Romania*
Ultrafast laser microprocessing of transparent materials for cancer research

11:30-11:50 **Ya Cheng,** *SIOM, China*
High-throughput industrial-scale glass microreactors manufactured by femtosecond laser microfabrication

11:50-12:10 **Daisuke Nakamura,** *Kyushu University, Japan*
High-speed copper welding by blue and infrared hybrid laser

12:10-12:30 **Mizue Mizoshiri,** *Tohoku University, Japan*
Femtosecond laser direct writing of non-enzymatic flexible sensors for D-glucose detection

12:30-13:30 **Lunch** **@ Foyer**

Metamaterials, Metasurfaces, and Nano-optics

Chair: **Ya Cheng,** *SIOM, China*

13:30-13:50 **Syoji Ito,** *Osaka University, Japan*
Control of optical forces using molecular photoresponses

13:50-14:10 **Shinji Hayashi,** *Kobe University, Japan*
Origin of fano resonances in excitonic nanostructures

14:10-14:30 **Chia Yen Huang,** *National Yangming Chiaotung University, Taiwan*
III-nitride-based super-resolution and multi-focal metalenses

14:30-14:50 **Masaki Michihata,** *The University of Tokyo, Japan*
Optical levitation and dynamics of a microsphere above LIPSS

14:50-15:10 **Yasuyuki Tsuboi,** *Osaka Metropolitan University, Japan*
Optical tweezers using nano-structured silicon crystals

15:10-15:30 **Kazuma Nakajima,** *The University of Osaka, Japan*
Ultrafast single-element beam switching using nanocomposite liquid crystal holographic optical elements

15:30-15:50 **N Yu Kuznetsov,** *Moscow State University, Russia*
Optical Mobius strips topology distribution in random electromagnetic fields

15:50-16:10 **Coffee Break** **@ Foyer**

Biophotonics and Computational Optics

Chair: **Masaki Michihata,** *The University of Tokyo, Japan*

16:10-16:30 **Fan Wang,** *Chiba University, Japan*
Advances in real 3D display by holography technology

16:30-16:50 **Takayuki Okamoto,** *Chiba University, Japan*
3D OCT image processing for quantitative choroidal analysis

16:50-17:10 **Hoang-Yan Lin,** *National Taiwan University, Taiwan*
From AR-head up display to MR-head up display

17:10-17:30 **Stephane Lanteri,** *Inria Center at Université Côte d'Azur, France*
Multiobjective inverse design of nanophotonic devices using statistical learning global optimization

17:30-17:50 **Ya Ju Lee,** *National Cheng Kung University, Taiwan*
Perovskite quantum-dot-based memristor for neuromorphic photonic computing

17:50-18:10 **Wen-Chuan Kuo,** *National Yangming Chiaotung University, Taiwan*
Multi-contrast optical coherence tomography for oral cancer detection

18:10 **End of the Day 1**

DAY-2

Tuesday, May 26, 2026
Room No: 501

Plenary-Keynotes Session - II

Chair: **Koji Sugoika,** *RIKEN Center for Advanced Photonics, Japan*

08:30-09:00 **Yongfeng Lu,** *University of Nebraska, USA*
Laser micro/nanojoining of carbon nanotubes, graphene, and carbon-copper composites

09:00-09:30 **Johann Troles,** *University of Rennes, France*
Chalcogenide glasses and infrared photonics

09:30-10:00 **Takashige Omatsu,** *Chiba University, Japan*
Optical vortex induced forward transfer towards advanced printing technology

10:00-10:30 **Hitoshi Soyama,** *Tohoku University, Japan*
Effect of laser wavelength in laser cavitation peening on fatigue strength improvement of Ti6Al4V

10:30-10:50 **Coffee Break** **@ Foyer**

Symposium : Advanced Laser Processing: Fundamentals and Applications-Part II

Chair: **Mizue Mizoshiri,** *Tohoku University, Japan*

10:50-11:10 **Yves Bellouard,** *Ecole Polytechnique Fédérale de Lausanne, Switzerland*
On the use of femtosecond lasers to tune functional properties of materials

11:10-11:30 **Haruki Kawaguchi,** *National Institute for Fusion Science, Japan*
Multi-pulse optical vortex laser ablation in liquid: plasmon-assisted asymmetric microstructuring

11:30-11:50 **Rebeca Martinez Vazquez,** *Istituto di Fotonica e Nanotecnologie (IFN) - CNR, Italy*
Femtosecond laser nano machining for microfluidic and optical applications

11:50-12:10 **Satoshi Hasegawa,** *Utsunomiya University, Japan*
Holographic laser material processing using a spatial light modulator

12:10-12:30 **Godai Miyaji,** *Tokyo University of Agriculture and Technology, Japan*
Direct nanofabrication on solids with intense femtosecond laser pulses

12:30-13:30 **Lunch** **@ Foyer**

Ultrafast Lasers, Nonlinear Optics, and Optoelectronics

Chair: **Rebeca Martinez Vazquez,** *Institute for Photonics and Nanotechnologies (IFN-CNR), Italy*

13:30-13:50 **Yasushi Fujimoto,** *Chiba Institute of Technology, Japan*
Advances in visible fluoride fiber lasers

13:50-14:10 **Hong Liu,** *Institute of Materials Research and Engineering, Singapore*
Second harmonic generation enhancement of a ferroelectric crystal

14:10-14:30 **Seungchul Kim,** *Pusan National University, South Korea*
Optical frequency comb engineered plasmonic spectroscopy for precision gas dynamics measurement

14:30-14:50 **Chang Hua Liu,** *National Tsing Hua University, Taiwan*
Novel spin-optoelectronics in 2D magnet-based van der Waals heterostructures

14:50-15:10 **Hiroaki Matsui,** *The University of Tokyo, Japan*
Oxide semiconductor-based plasmonic metasurfaces for infrared applications

15:10-15:30 **Coffee Break** **@ Foyer**

Photonic Sensing, Surface Processing, and Quantum Communication

Chair: **Minhyuk Kim,** *Korea University, South Korea*

15:30-15:50 **Yuuki Tokunaga,** *Hokkaido University, Japan*
High-purity single-photon generation based on cavity quantum electrodynamics

15:50-16:10 **Kou Li,** *Chuo University, Japan*
Photo-thermoelectric conversion with carbon nanotubes and non-destructive testing application

16:10-16:30 **Hiroshi Moriwaki,** *Shinshu University, Japan*
Formation of structural colors on pencil leads and penciled characters by plasma etching

16:30-16:50 **Naofumi Ohtsu,** *Kitami Institute of Technology, Japan*
Laser-induced plasma processing enabling open-air nitriding of metal surfaces

16:50-17:10 **Hiraku Matsukuma,** *Tohoku University, Japan*
Rotational motion measurement based on dual-comb spectroscopy

17:10-17:30 **Vladislav Tretiakov,** *Quantum Technology Centre of Moscow State University, Russia*
Free-space quantum communication over an urban atmospheric link in Moscow: system design and field experiments

17:30-18:00 **Drinks & Poster Presentations** **Room No: 501**

P-01 **Hayato Hamashima,** *Chuo University, Japan*
Performance enhancement of photo-thermal sensors through selective noise removal

P-02 **Ryuki Kashiwagi,** *University of Tsukuba, Japan*
Experimental study of a sub-millimeter conical light collector: toward far-infrared neutrino decay photon detection

P-03 **Yu Zhang,** *Osaka Metropolitan University, Japan*
Optical tweezers-induced droplet formation of Poly(N,N-dimethylacrylamide-CO- N-tert-butylacrylamide) for fluorescent molecule extraction and detection

P-04 **Kimiko Kanazawa,** *Osaka Metropolitan University, Japan*
Modulating the laser-induced phase separation characteristics of NIPAM-DEA random copolymers

P-05 **Akazawa Moe,** *Osaka Metropolitan University, Japan*
Extraction of 3-perylenecarboxaldehyde into an ionic liquid microdroplet formed by optical tweezers

P-06 **Reika Fukumitsu,** *Osaka Metropolitan University, Japan*
Optimization of black silicon nanostructures for optical tweezers: achieving stable trapping of 70-nm particles

DAY-3

Wednesday, May 27, 2026
Room No: 501

Terahertz Science and Technology

Chair: **Tomoya Oshikiri,** *Tohoku University, Japan*

08:30-08:50 **Kodo Kawase,** *Nagoya University, Japan*
Realtime spectroscopy using THz parametric generation/detection

08:50-09:10 **Jeong-Hwan Lee,** *Inha University, South Korea*
Probing polaron dynamics in organic light-emitting diodes

09:10-09:30 **Chie Hosokawa,** *Osaka Metropolitan University, Japan*
Laser-induced perturbation of single neuronal cells

09:30-09:50 **Fabrizio Piacentini,** *Istituto Nazionale di Ricerca Metrologica, Italy*
Zeno-based universal protection of qubits from decoherence

09:50-10:10 **Kazunori Serita,** *Waseda Univeristy, Japan*
Next-generation biomedical imaging with terahertz point-source microscopy

10:10-10:30 **Chang Monli,** *National Taiwan University of Science and Technology, Taiwan*
A 960-element full-duplex dual-band dual-polarized array antenna for 6G NTN transceiver applications

10:30-10:50 **Coffee Break** **@ Foyer**

Quantum Optics and Atomic Physics

Chairs: **Fabrizio Piacentini,** *Istituto Nazionale di Ricerca Metrologica, Italy*
Chie Hosokawa, *Osaka Metropolitan University, Japan*

10:50-11:10 **Minhyuk Kim,** *Korea University, South Korea*
Toward quantum simulations and computations with three-dimensional Rydberg atoms

11:10-11:30 **Kenjiro Fukuda,** *The University of Osaka, Japan*
Ultrathin solar cells as an energy harvester for wearable

11:30-11:50 **Tomoya Oshikiri,** *Tohoku University, Japan*
Investigation of near-field chirality in plasmonic nanostructures via photoemission electron microscopy

11:50-12:10 **Tatsuki Tahara,** *National Institute of Information and Communications Technology, Japan*
Daily-use-light holography for multidimensional image sensing

12:10 **Lunch & Departures** **@ Foyer**

DAY-3 (Virtual)

Wednesday, May 27, 2026
Japan Standard Time (JST)

Join Zoom Meeting:
https://us06web.zoom.us/j/82732010812?pwd=3GdMk3q1b69OqrtoPV3DXCUiHZHJ8N.1

Meeting ID: 827 3201 0812
Passcode: 735908

Session-I

Chair: **Ling-Ling Ma,** *Nanjing University, China*

13:00-13:30 **Boris Malomed,** *Tel Aviv University, Israel* - **(Keynote Talk)**
Multidimensional solitons

13:30-13:50 **Sun Je Kim,** *Soongsil University, South Korea*
Cascaded metasurfaces for holography and electromagnetic field enhancement

13:50-14:10 **Jun Gao,** *Huazhong University of Science and Technology, China*
Hybrid integrated photonic quantum computing and quantum simulation

14:10-14:30 **Ling-Ling Ma,** *Nanjing University, China*
Liquid crystals for nonlinear photonics

14:30-14:50 **Hiroyuki Fujii,** *Hokkaido University, Japan*
Modeling light scattering of dense and polydisperse colloidal suspensions

14:50-15:10 **Satoshi Hiura,** *Hokkaido University, Japan*
Spin-optoelectronic devices based on dilute nitride semiconductors operating at room temperature

15:10-15:30 **Jumpei Ogino,** *Osaka University, Japan*
Development of high-power conduction-cooled active-mirror laser system SENJU 100J 100Hz

15:30-15:40 **Break**

Session-II

Chairs: **Soma Venugopal Rao,** *University of Hyderabad, India*
Sankar Davuluri, *Birla Institute of Technology & Science, India*

15:40-16:00 **Bao-Sen Shi,** *University of Science and Technology of China, China*
Mid-infrared signal detection based on a spectrum transducer

16:00-16:20 **Andreas Ostendorf,** *Ruhr University Bochum, Germany*
Increased precision by ultrashort pulsed laser processing in water

16:20-16:40 **Keyu Xia,** *Nanjing University, China*
Critical-point-enhanced sensing

16:40-17:00 **Hitoshi Tabata,** *The University of Tokyo, Japan*
Terahertz plasmonics for bio-medical application

17:00-17:20 **Yasuyuki Yokota,** *RIKEN, Japan*
Molecular-scale exploration of electrochemical interfaces: near-field and far-field approaches

17:20-17:40 **Mohd Mahadi Halim,** *Universiti Sains Malaysia, Malaysia*
Zinc oxide nanostructured random lasers: next-generation light sources for advanced bioimaging and biosensing

17:40-18:00 **Sankar Davuluri,** *Birla Institute of Technology & Science, India*
Cross-correlated homodyne measurement and its application for building quantum lidar

18:00-18:20 **Soma Venugopal Rao,** *University of Hyderabad, India*
Chronicles of light: ultrashort laser pulses and the transformation of materials

18:20-18:40 **Nadiah Husseini Zainol Abidin,** *Universiti Putra Malaysia, Malaysia*
Perovskite nanocomposite for femtosecond laser generation

18:40-18:50 Break

Session-III

Chair: Cyril Mauclair, *University of Angers, France*

18:50-19:10 **Antonio Garcia Loureiro,** *University of Santiago de Compostela, Spain*
Engineering high-performance laser power converters based on SiC polytypes

19:10-19:30 **Carmen Ristoscu,** *INFLPR - National Institute for Laser, Plasma and Radiation Physics, Romania*
Composite coatings synthesized by laser methods for bone repair and preventing infection

19:30-19:50 **Nicolas Sanner,** *Aix-Marseille Univ., CNRS LP3, France*
Embedded metasurfaces machined inside standard fused silica by intense laser beams

19:50-20:10 **Airan Rodenas,** *Universidad de La Laguna, Spain*
Seamless integration of 3D hollow micro and nanostructures inside crystals for functional components

20:10-20:30 **Cyril Mauclair,** *University of Angers, France*
Measurement of low-repetition-rate thermal effects in liquids using femtosecond z-scan and cavitation monitoring

20:30-20:50 **Lianping Hou,** *University of Glasgow, United Kingdom*
Narrow-linewidth 1550 nm semiconductor lasers with a broad operating current range

20:50-21:00 Break

Session-IV

Chair: Tersilla Virgili, *Institute of Photonics and Nanotechnologies(IFN-CNR), Italy*

21:00-21:20 **Matthieu Bellec,** *Institut de Physique de Nice, France*
Direct-laser-writing in optical fibers: engineering ultra-long waveguides and scattering nanoparticles

21:20-21:40 **Tersilla Virgili,** *Institute of Photonics and Nanotechnologies(IFN-CNR), Italy*
Tailoring the ultra-fast infrared optical response of Al:ZnO through nanostructuration

21:40-22:00 **Antonio Di Bartolomeo,** *University of Salerno, Italy*
Photo-induced synaptic functionality in 2D tin dichalcogenides

22:00-22:20 **Vikas Kumar,** *CSIR National Physical Laboratory, India*
Robust and precision displacement measurement through speckle pattern imaging technique

22:20-22:40 **Weijie Nie,** *University of Bristol, UK*
Entanglement-inspired rangefinding for daylight noise suppression

22:40-23:00 **Wenlong Tian,** *Xidian University, China*
High performance femtosecond solid-state laser technology for secondary radiation generation

23:00 End of the Conference

See you at

May 2027

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