PROCEEDINGS OF SPIE

Optical Manipulation and Structured Materials Conference 2021

Takashige Omatsu Kishan Dholakia Hajime Ishihara Keiji Sasaki Editors

Online Only, Japan

Published by SPIE

Volume 11926

Proceedings of SPIE 0277-786X, V. 11926

SPIE is an international society advancing an interdisciplinary approach to the science and application of light.

Optical Manipulation and Structured Materials Conference 2021, edited by Takashige Omatsu, Kishan Dholakia, Hajime Ishihara, Keiji Sasaki, Proc. of SPIE Vol. 11926, 1192601 · © 2021 SPIE · 0277-786X · doi: 10.1117/12.2622491

The papers in this volume were part of the technical conference cited on the cover and title page. Papers were selected and subject to review by the editors and conference program committee. Some conference presentations may not be available for publication. Additional papers and presentation recordings may be available online in the SPIE Digital Library at SPIEDigitalLibrary.org.

The papers reflect the work and thoughts of the authors and are published herein as submitted. The publisher is not responsible for the validity of the information or for any outcomes resulting from reliance thereon.

Please use the following format to cite material from these proceedings:

Author(s), "Title of Paper," in Optical Manipulation and Structured Materials Conference 2021, edited by Takashige Omatsu, Kishan Dholakia, Hajime Ishihara, Keiji Sasaki, Proc. of SPIE 11926, Seven-digit Article CID Number (DD/MM/YYYY); (DOI URL).

ISSN: 0277-786X

ISSN: 1996-756X (electronic)

ISBN: 9781510647206

ISBN: 9781510647213 (electronic)

Published by

SPIE

P.O. Box 10, Bellingham, Washington 98227-0010 USA Telephone +1 360 676 3290 (Pacific Time)

SPIE.org

Copyright © 2021 Society of Photo-Optical Instrumentation Engineers (SPIE).

Copying of material in this book for internal or personal use, or for the internal or personal use of specific clients, beyond the fair use provisions granted by the U.S. Copyright Law is authorized by SPIE subject to payment of fees. To obtain permission to use and share articles in this volume, visit Copyright Clearance Center at copyright.com. Other copying for republication, resale, advertising or promotion, or any form of systematic or multiple reproduction of any material in this book is prohibited except with permission in writing from the publisher.

Printed in the United States of America by Curran Associates, Inc., under license from SPIE.

Publication of record for individual papers is online in the SPIE Digital Library.



Paper Numbering: A unique citation identifier (CID) number is assigned to each article in the Proceedings of SPIE at the time of publication. Utilization of CIDs allows articles to be fully citable as soon as they are published online, and connects the same identifier to all online and print versions of the publication. SPIE uses a seven-digit CID article numbering system structured as follows:

- The first five digits correspond to the SPIE volume number.
- The last two digits indicate publication order within the volume using a Base 36 numbering system employing both numerals and letters. These two-number sets start with 00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 0A, 0B ... 0Z, followed by 10-1Z, 20-2Z, etc. The CID Number appears on each page of the manuscript.

Contents

OMC-1 11926 02 Laser transverse modes with SU(2) representation (Invited Paper) [11926-1] 11926 03 Generation of geometrical Laguerre-Gaussian modes from a Nd:GdVO4 laser with a degenerate cavity configuration [11926-2] 11926 04 Vector vortex generation from Raman laser cavity [11926-3] 11926 05 Fiber optic one-dimensional Airy-like beam generation by creating an offset between the cylindrical lens and the fiber endface [11926-4] 11926 06 Dispersion control of orbital angular momentum mode using a ring core with graded-index **profile** [11926-5] OMC-2 11926 07 Optical trapping of Poly(N-isopropylacrylamide) gel particles using metallic nanostructures [11926-6] 11926 08 Analysis on spatial distribution of Poynting vectors for multimer plasmonic fields [11926-7] 11926 09 Orbital angular momentum mode generation using anisotrophic liquid crystal filled capillary [11926-8] 11926 0A Spiral surface relief formation with Hermite-Gaussian beams possessing zero orbital angular momentum [11926-9] OMC-3 11926 OB Detection of radiation force due to simultaneous two-photon absorption [11926-10] 11926 0C Optical trapping of amyloid fibrils of hen egg-white lysozyme [11926-11] 11926 0D Observation of optical molecuar manipulation dynamics at solid-liquid interface via surface enhanced raman scattering [11926-12] 11926 OE Optical trapping and assembly of particle clusters using hybrid plasmonic-photonic nanotweezers [11926-13]

11926 OF	Size separation of polymer gels using plasmonic optical tweezers [11926-14]
11926 0G	Optical vortex induced microdroplet with a plasmonic nanocore [11926-15]
	OMC-4
11926 OH	Optical trapping of a nanoparticle by a copper nanoantenna [11926-16]
11926 01	Fluid convection driven by suspended particles in optical trapping [11926-17]
11926 OJ	Analysis of small plastics in coastal surface water samples of Okinawa using optical tweezers-Raman spectroscopy [11926-18]
11926 OK	Optical gradient force on gold chiral nanoparticles [11926-19]
	OMC-5
11926 OL	Lensless phase retrieval based on convolutional neural network for holographic storage [11926-20]
11926 OM	Theoretical study on modeling and sorting of real Chiral molecules by using resonant optical force [11926-21]
11926 ON	Low-damage and large scale optical condensation of useful bacteria with bubble-mimetic substrate [11926-22]
11926 00	Interaction optical torque induced by plasmon coupling [11926-23]
11926 OP	Isotopic hydrogen evolution reactions under plasmonic excitation [11926-24]
11926 0Q	Laser processing simulation for Marangoni-driven needle formation under optical vortex [11926-25]
	OMC-6
11926 OR	Detection of the transverse spin of light by twisting anisotropic particles near an optical nanofiber waveguide [11926-26]
11926 OS	Electromagnetic near-field responses of a chiral molecule on a metal surface [11926-27]
11926 OT	Non-equilibrium properties of an active nanoparticle in a harmonic potential (Invited Paper) [11926-28]

11926 OU	Hydrodynamic micro manipulation on an optical tweezers platform (Invited Paper) [11926-29]
	OMC-7
11926 OV	Optical fiber-based traps for particle trapping and manipulation (Invited Paper) [11926-30]
11926 OW	Optical trapping of nanoparticles suspended in water with a bull's eye-type plasmonic chip [11926-31]
11926 OX	Tapered glass capillaries for the optical manipulation and sorting of nanoparticles: practical considerations [11926-32]
11926 OY	Deformation of optical vortex beam by off-axis incident-beam from spiral phase plate center [11926-33]
11926 OZ	Abrupt U-turn of the dielectric particle by anti-parallel fiber optic Bessel beams [11926-34]
	OMC-8
11926 10	Acousto-optic annular beam shaping for optical traps and lattices [11926-35]
11926 11	Sensing with structured beams [11926-36]
	OMC-9
11926 12	Observation of the Dyakonov surface wave mode propagating at a hyperbolic metasurface at the visible frequency (Invited Paper) [11926-37]
11926 13	Incoherent optical tweezer on a nanostructured rare metal [11926-38]
11926 14	Optical properties of semiconductor microspheres fabricated via laser ablation in superfluid helium [11926-39]
11926 15	Autonomous vibration of a luminescent thin film arising from luminescence-induced optical force [11926-40]
11926 16	Accelerating Bessel-like beam [11926-41]
	POSTER SESSION
11926 17	Synthesis of ring-shaped Ag-Pt nanoparticles for the application to plasmon-enhanced electrocatalysts [11926-42]

11926 18	Design of AIN-subwavelength grating for deep ultraviolet wavelength reflector operating at 244 nm of wavelength [11926-43]
11926 19	An improved phase retrieval method in holographic data storage based on embedded encoding [11926-44]
11926 1A	Phase retrieval by aberration compensation in holographic data storage [11926-45]
11926 1B	Electrochromic performance of an all-solid-state ITO/WO ₃ /Li-NbO ₃ /V ₂ O ₅ /ITO electrochromic device deposited by magnetron sputtering [11926-46]
11926 1C	Collinear non-interferometric phase retrieval holographic data storage with single reference pixel [11926-47]