

PROCEEDINGS OF SPIE

Quantum Communications and Quantum Imaging XXIII

Keith S. Deacon
Ronald E. Meyers
Editors

3–4 August 2025
San Diego, California, United States

Sponsored and Published by
SPIE

Volume 13618

Proceedings of SPIE 0277-786X, V. 13618

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

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 SPIDigitalLibrary.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 *Quantum Communications and Quantum Imaging XXIII*, edited by Keith S. Deacon, Ronald E. Meyers, Proc. of SPIE 13618, Seven-digit Article CID Number (DD/MM/YYYY); (DOI URL).

ISSN: 0277-786X

ISSN: 1996-756X (electronic)

ISBN: 9781510691445

ISBN: 9781510691452 (electronic)

Published by

SPIE

P.O. Box 10, Bellingham, Washington 98227-0010 USA

Telephone +1 360 676 3290 (Pacific Time)

SPIE.org

Copyright © 2025 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.

**SPIE. DIGITAL
LIBRARY**

SPIDigitalLibrary.org

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

v *Conference Committee*

QUANTUM COMMUNICATIONS AND NETWORKING

- 13618 03 **Investigating the impact of relative entropy of coherence on end-to-end fidelity in quantum networks under different noise models** [13618-5]
- 13618 04 **Silicon chip-based polarization entanglement distribution through ultra-low-loss fiber: splicing and polarization control (Invited Paper)** [13618-6]

QUANTUM COMMUNICATIONS AND TECHNOLOGY

- 13618 05 **Homodyne-based CV QRNG receiver module for the SPOQC mission (Invited Paper)** [13618-7]
- 13618 06 **Adaptive optics for single photons in orbital angular momentum modes with parametrically varied emulated turbulence** [13618-8]
- 13618 07 **Time-delay attack and mitigation technique for remote identification of entangled photon pairs** [13618-12]

QUANTUM IMAGING

- 13618 08 **Light-field microscopy with entangled photons (Invited Paper)** [13618-15]
- 13618 09 **3D and hyperspectral imaging through photon correlation and coherence of light (Invited Paper)** [13618-16]
- 13618 0A **Effect of the finite size of the source in correlation imaging** [13618-17]
- 13618 0B **Entangled two-photon absorption cross-section measurements for biologically important fluorophores** [13618-49]

QUANTUM INFORMATION AND TECHNOLOGY

- 13618 0D **Programmable generation of optical Gaussian and non-Gaussian quantum states (Invited Paper)** [13618-20]
- 13618 0E **Measurement-based continuous-variable quantum reservoir computing (Invited Paper)** [13618-21]

QUANTUM NANOPHOTONICS

- 13618 OF **Deterministic integration on V-groove fiber arrays for multichannel quantum photonic platforms** [13618-25]
- 13618 OG **Quantum effects in optical fiber sensors** [13618-26]

QUANTUM SCIENCE TECHNOLOGY AND ENTANGLEMENT

- 13618 OH **Implementation of nonlocal multiphoton interference by mode swapping (Invited Paper)** [13618-29]
- 13618 OI **Effect of anti-relaxation coatings on EIT-based quantum memory in Cs vapor cells (Invited Paper)** [13618-31]
- 13618 OJ **Enhanced emission of GaAs quantum dots in bend nanomembranes** [13618-35]

QUANTUM SENSING

- 13618 OK **Enhancing fiber optic gyroscope precision using polarization-entangled two-photon states** [13618-37]
- 13618 OL **Simulation of correlation plenoptic imaging under pseudothermal illumination (Invited Paper)** [13618-38]
- 13618 OM **How to measure a quantum algorithm: complexities and models** [13618-39]
- 13618 ON **Beam tracking beyond the Heisenberg uncertainty limit** [13618-41]

POSTER SESSION

- 13618 OO **Efficient generation of photon bunched light for clock synchronization** [13618-42]
- 13618 OP **Cavity-mediated quantum correlation between QDs** [13618-46]
- 13618 OQ **Quantum integrated squeezed light enhancement and detection with photonics integrated circuits: a single-pass configuration** [13618-48]