PROCEEDINGS OF SPIE

Advances in Photonics of Quantum Computing, Memory, and Communication X

Zameer UI Hasan Philip R. Hemmer Hwang Lee Alan L. Migdall Editors

31 January–2 February 2017 San Francisco, California, United States

Sponsored and Published by SPIE

Volume 10118

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 Advances in Photonics of Quantum Computing, Memory, and Communication X, edited by Zameer UI Hasan, Philip R. Hemmer, Hwang Lee, Alan L. Migdall, Proceedings of SPIE Vol. 10118 (SPIE, Bellingham, WA, 2017) Seven-digit Article CID Number.

ISSN: 0277-786X

ISSN: 1996-756X (electronic)

ISBN: 9781510606777

ISBN: 9781510606784 (electronic)

Published by

SPIE

P.O. Box 10, Bellingham, Washington 98227-0010 USA Telephone +1 360 676 3290 (Pacific Time)· Fax +1 360 647 1445 SPIF org

Copyright © 2017, Society of Photo-Optical Instrumentation Engineers.

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 copying fees. The Transactional Reporting Service base fee for this volume is \$18.00 per article (or portion thereof), which should be paid directly to the Copyright Clearance Center (CCC), 222 Rosewood Drive, Danvers, MA 01923. Payment may also be made electronically through CCC Online 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. The CCC fee code is 0277-786X/17/\$18.00.

Printed in the United States of America Vm7 i ffUb 5 gpc WJUhY gž & Wži bXY f JW bgY Zfca CD-9.

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



Paper Numbering: Proceedings of SPIE follow an e-First publication model. A unique citation identifier (CID) number is assigned to each article 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 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 vii	Authors Conference Committee
	NON-BLEACHING AND ULTRA-SMALL FLUORESCENT PROBES: JOINT SESSION WITH CONFERENCES 10079 AND 10118
10118 03	Commercial quantities of ultrasmall fluorescent nanodiamonds containing color centers (Invited Paper) [10118-3]
	CONTINUOUS-VARIABLE QUANTUM INFORMATION
10118 04	Continuous-variable quantum optical experiments in the time domain using squeezed states and heralded non-Gaussian states (Invited Paper) [10118-4]
	QUANTUM OPTICAL ENTANGLEMENT FOR COMPUTATIONAL AND COMMUNICATION LINKS I
10118 OB	High-speed continuous-variable quantum key distribution over atmospheric turbulent channels [10118-11]
	QUANTUM OPTICAL ENTANGLEMENT FOR COMPUTATIONAL AND COMMUNICATION LINKS II
10118 0E	Practical repeaters for ultra-long distance quantum communication (Invited Paper) [10118-14]
10118 OF	Time-optimal quantum control via differential geometry (Invited Paper) [10118-15]
	HYPERENTANGLEMENT OF PHOTONS
10118 0G	Multidimensional tomography of an entangled photon-pair source using stimulated emission (Invited Paper) [10118-16]
10118 OI	On chip analysis of path-polarization hyperentangled cluster photon states (Invited Paper) [10118-18]
10118 OJ	Non-local correlations in a hyper-entangled circuit [10118-19]

	SOLID-STATE QUANTUM MEMORIES I
10118 ON	Towards an efficient nanophotonic platform integrating quantum memories and single qubits based on rare-earth ions [10118-23]
	QUANTUM ENTANGLEMENT SENSING
10118 OZ	Advantages of interaction-based readout for quantum sensing (Invited Paper) [10118-35]
	POSTER SESSION
10118 11	Plasmonic superradiance of two emitters near metal nanorod [10118-37]
10118 13	Integrated optics-based quantum communication devices [10118-39]
10118 14	All-fiber photon-pair source at telecom wavelengths [10118-40]
10118 17	Spectral correlation and interference in continuous-wave non-degenerate photon pairs at telecom wavelengths [10118-43]