Advanced Photon Counting Techniques X

Mark A. Itzler
Joe C. Campbell
Editors

20–21 April 2016
Baltimore, Maryland, United States

Sponsored and Published by
SPIE
Contents

v Authors
vii Conference Committee

SINGLE-PHOTON IMAGING

9858 05 Quanta image sensor: concepts and progress (Invited Paper) [9858-4]
9858 09 Development of low read noise high conversion gain CMOS image sensor for photon counting level imaging [9858-8]

SINGLE-PHOTON AVALANCHE DIODE ARRAYS

9858 0A Silicon technologies for arrays of Single Photon Avalanche Diodes (Best Paper Award) [9858-9]
9858 0B Development of silicon single-photon avalanche diode at Voxel Inc. [9858-10]
9858 0C High performance compound semiconductor SPAD arrays (Invited Paper) [9858-11]

SINGLE-PHOTON DEVICE INTEGRATION PLATFORMS

9858 0I 3D avalanche multiplication in Si-Ge lateral avalanche photodiodes [9858-17]

TIME-CORRELATED SINGLE-PHOTON COUNTING

9858 0J Wide-field TCSPC-based fluorescence lifetime imaging (FLIM) microscopy (Invited Paper) [9858-18]
9858 0L Time-Correlated Photon Counting (TCPC) technique based on a photon-number-resolving photodetector [9858-20]

SUPERCONDUCTING NANOWIRE SPDS

9858 0M Recent advances in superconducting nanowire single photon detectors for single-photon imaging (Invited Paper) [9858-21]
PHOTON-COUNTING RECEIVERS

9858 0Q  Characterization of an advanced harmonic subtraction single-photon detection system based on an InGaAs/InP avalanche diode (Invited Paper) [9858-25]

9858 0R  Advanced active quenching circuits for single-photon avalanche photodiodes (Invited Paper) [9858-26]

9858 0S  Femtosecond photon-counting receiver (Best Paper Award) [9858-27]

9858 0T  Low noise, free running, high rate photon counting for space communication and ranging [9858-28]
Authors

Numbers in the index correspond to the last two digits of the six-digit citation identifier (CID) article numbering system used in Proceedings of SPIE. The first four digits reflect the volume number. Base 36 numbering is employed for the last two digits and indicates the order of articles within the volume. Numbers start with 00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 0A, 0B...0Z, followed by 10-1Z, 20-2Z, etc.

Allman, M. S., 0M
Becker, Wolfgang, 0J
Beyer, A., 0M
Bienfang, Joshua C., 0Q
Bowling, Jared, 0C
Camacho, Ryan M., 0I
Ceccarelli, Francesco, 0A
Christensen, B. G., 0R
Conneely, Thomas, 0J
Davids, Paul S., 0I
Dhulla, Vinif, 0B
Fossum, Eric R., 0S
Gauthier, D. J., 0R
Gerrits, T., 0M
Ghioni, Massimo, 0A
Gulinatti, Angelo, 0A
Han, Dejun, 0L
Harmon, Eric S., 0C
Hayat, Majeed M., 0I
Hirvonen, Liisa M., 0J
Horansky, R. D., 0M
Hui, Debin, 0L
Jagutski, Ottmar, 0J
Jamil, Erum, 0L
Kagawa, Keiichiro, 09
Kawahito, Shoji, 09
Kogan, Grigory, 0B
Krainak, Michael A., 0S, 0T
Kwiat, P. G., 0R
Le Marois, Alix, 0J
Li, Baicheng, 0L
Liang, Kun, 0L
Lita, A. E., 0M
Lu, Wei, 0S, 0T
Ma, Jiaju, 05
Marsili, F., 0M
Masoodian, Saleh, 05
Merritt, Scot, 0T
Miao, Quanlong, 0L
Miller, Drake, 0B
Milnes, James, 0J
Miri, R. P., 0M
Mifaru-Berceanu, Dumitru, 0B
Nam, S. W., 0M
Naydenkov, Mikhail, 0C
Netz, Holger, 0J
Numata, Kenji, 0S
Rambo, Timothy M., 0S
Rech, Ivan, 0A
Restelli, Alessandro, 0Q
Seo, Min-Woong, 09
Shaw, M. D., 0M
Smietana, Stefan, 0J
Stem, J. A., 0M
Stevens, M., 0M
Stipčević, M., 0R
Suhting, Klaus, 0J
Sun, Xiaoli, 0T
Verma, V. B., 0M
Wang, Shenyuan, 0L
Yang, Guangning, 0S, 0T
Yang, Ru, 0L
Yasutomi, Keita, 09
Zhao, Tianqi, 0L
Conference Committee

Symposium Chair
  **Ming C. Wu**, University of California, Berkeley (United States)

Symposium Co-chair
  **Majid Rabbani**, Eastman Kodak Company (United States)

Conference Chair
  **Mark A. Itzler**, Princeton Lightwave, Inc. (United States)

Conference Co-chair
  **Joe C. Campbell**, University of Virginia (United States)

Conference Program Committee
  **Gerald S. Buller**, Heriot-Watt University (United Kingdom)
  **William H. Farr**, Jet Propulsion Laboratory (United States)
  **Robert H. Hadfield**, University of Glasgow (United Kingdom)
  **Majeed Hayat**, The University of New Mexico (United States)
  **Michael A. Krainak**, NASA Goddard Space Flight Center (United States)
  **Robert A. Lamb**, SELEX Galileo Ltd. (United Kingdom)
  **K. Alex McIntosh**, MIT Lincoln Laboratory (United States)
  **Alan L. Migdall**, National Institute of Standards and Technology (United States)
  **Michael Wahl**, PicoQuant GmbH (Germany)
  **Hugo Zbinden**, University of Geneva (Switzerland)
  **Ivan Rech**, Politecnico di Milano (Italy)

Session Chairs
  1. Photon-Counting Communications
     **Mark Itzler**, Princeton Lightwave, Inc. (United States)
  2. Single-Photon Imaging
     **Mark Itzler**, Princeton Lightwave, Inc. (United States)
  3. Single-Photon Avalanche Diode Arrays
     **Joe C. Campbell**, University of Virginia (United States)
4 Single-Photon Device Integration Platforms  
**Gerald S. Buller,** Heriot-Watt University (United Kingdom)  

5 Time-Correlated Single-Photon Counting  
**Angela Gulinatti,** Politecnico di Milano (Italy)  

6 Superconducting Nanowire SPDs  
**William H. Farr,** Jet Propulsion Laboratory (United States)  

7 Photon-Counting Receivers  
**Majeed M. Hayat,** The University of New Mexico (United States)