

PREMI E RICONOSCIMENTI

PROFESSOR SERGIO COVA

Invited talk

2006

M. Ghioni, A. Gulinatti, I. Rech, S. Cova, "Recent advances in Silicon Single Photon Avalanche Diodes and their Applications", LEOS 2006, 19th Annual Meeting of the IEEE Laser & Electro-Optics Society, Montreal (Canada), 29 Oct.- 2 Nov. 2006.

S. Cova, F. Zappa, A. Tosi, M. Ghioni, "Avalanche Diodes and Circuits for Infrared Photon Counting and Timing: Retrospect and Prospect", 2006 IEEE-LEOS Summer Topical Meeting, Infrared Sensors, Quebec City, Canada, July 17-19, 2006.

S. Cova, M. Ghioni, F. Zappa, I. Rech, A. Gulinatti, "A View on Progress of Silicon Single Photon Avalanche Diodes and Quenching Circuits", SPIE Optics East, Conference 6372 Advanced Photon Counting Techniques, SPIE Proc. 6372, pp. 63720 11-12, W. Becker ed. (2006).

Papers cited 10 times or more

2006

R.T.Thew, S.Tanzilli, L.Krainer, S.C.Zeller, A.Rochas, I.Rech, S.Cova, H.Zbinden, N.Gisin, "Low jitter up-conversion detectors for telecom wavelength GHz QKD", New J. Phys. 8, 32 (12 pages) (2006).

Invited talk

2005

G.S.Buller, K.J.Gordon, V. Fernandez, R.J.Collins, S.Pellegrini, S.Cova, P.D.Townsend, "An Approach to High Key Exchange Rate Quantum Key Distribution in Optical Fibres", ECOC 2005, European Conference on Optical Communications, Glasgow, UK, September 2005, Volume 5, pp. 63-66 (2005).

IEEE Distinguished Lecturer

2005

Sergio Cova has been appointed Distinguished Lecturer of IEEE-LEOS (Laser and Electro Optics Society of the Institution of Electrical and Electronic Engineers) for the term June 2005 to June 2007.

Invited talk

2005

G.S.Buller, K.J.Gordon, V. Fernandez, R.J.Collins, S.Pellegrini, S.Cova, P.D.Townsend, "An Approach to High Key Exchange Rate Quantum Key Distribution in Optical Fibres", ECOC 2005, European Conference on Optical Communications, Glasgow, UK, September 2005, Volume 5, pp. 63-66 (2005).

Papers cited 10 times or more

2005

K.Gordon, V.Fernandez, G.Buller, I.Rech, S.Cova, P.Townsend, "Quantum key distribution system clocked at 2 GHz", Optics Express 13, 3015-3020 (2005).

Invited talk

2005

S.Cova, M.Ghioni, A.Lotito, I.Rech, F.Zappa, "Evolution and Prospect of Single-Photon Avalanche Diodes and Quenching Circuits", Single Photon Detector Workshop, SPW2003 March 31-April 1, NIST Gaithersburg, MD, USA.

Papers cited 10 times or more

2004

S.Cova, M.Ghioni, A.Lotito, I.Rech, F.Zappa, "Evolution and Prospect of Single-Photon Avalanche Diodes and Quenching Circuits", J. Mod. Optics, vol. 51, 1267-1288 (2004).

Invited talk

2003

S.Cova, M.Ghioni, A.Lotito, I.Rech, F.Zappa, "Evolution and Prospect of Single-Photon Avalanche Diodes and Quenching Circuits", Single Photon Detector Workshop, SPW2003 March 31-April 1, NIST Gaithersburg, MD, USA.

Papers cited 10 times or more

2003

H.Yang, G.Luo, P.Karnchanaphanurach, T.M.Louie, I.Rech, S.Cova, L.Xun, X.S.Xie, "Protein Conformational Dynamics Probed by Single-Molecule Electron Transfer", Science 302, 262-266 (2003).

F.Zappa, A.Lotito, A.C.Giudice, S.Cova, M.Ghioni, "Monolithic active-quenching and active-reset circuit for single-photon avalanche detectors ", IEEE J. of Solid-State Circuits 38, 1298-1301 (2003).

E.Sciacca, A.Giudice, D.Sanfilippo, F.Zappa, S.Lombardo, R.Consentino, C.Di Franco, M.Ghioni, G.Fallica, G.Bonanno, S.Cova, E.Rimini, "Silicon planar technology for single-photon optical detectors", IEEE Trans. on Electron Devices 50, 918-925 (2003).

2002

J.Massa, G.Buller, A.Walker, G.Smith, S.Cova, M.Umasuthan, A.Wallace, "Optical design and evaluation of a three-dimensional imaging and ranging system based on time-correlated single-photon counting", Appl.Opt. 41, 1063-1070 (2002).

Annual Prize by IOP (Institute of Physics UK)

2001

Annual Prize by IOP (Institute of Physics UK) for best papers published in Measurement Science and Technology in the year 2000 awarded to paper "Laser-based distance measurement using picosecond resolution time-correlated single-photon counting", by S.Pellegrini, G.S.Buller, J.M.Smith, A. M.Wallace, S.Cova, Meas.Sci.Tech. vol. 11, 712-716 (2000).

Papers cited 10 times or more

2000

S.Pellegrini, G.S.Buller, J.M.Smith, A. M.Wallace, S.Cova, "Laser-based distance measurement using picosecond resolution time-correlated single-photon counting", Meas.Sci.Tech. 11, 712-716 (2000).

1998

A.Spinelli, M.Ghioni, S.Cova, L.M.Davis, "Avalanche detector with ultraclean response for time-resolved photon counting", IEEE J. Quantum Electron. QE-34, 817-821 (1998).

1996

S.Cova, M.Ghioni, A.Lacaita, C.Samori, F.Zappa, "Avalanche photodiodes and quenching circuits for single photon -detection", Appl. Optics. 35, 1956-1976 (1996).

M.Ghioni, S.Cova, F.Zappa, C.Samori, "Compact active quenching circuit for fast photon counting with avalanche photodiodes", Rev. Sci. Instrum. 67, 3440-3448 (1996).

A.Lacaita, F.Zappa, S.Cova, P.Lovati, "Single-photon detection beyond 1 μ m: performance of commercially available InGaAs/InP detectors", Appl. Opt. 35, 2986-2996 (1996).

F.Zappa, A.Lacaita, S.Cova, P.Lovati, "Solid-state single-photon detectors ", Opt. Eng. 35, 938-945 (1996).

G.S. Buller, S. J. Fancey, J. S. Massa, A. C. Walker, S. Cova, A. Lacaita, "Time-Resolved Photoluminescence Measurements of InGaAs/InP Multiple Quantum Well Structures at 1.3 μ m wavelengths by use of Germanium Single-Photon Avalanche Diodes", Appl. Opt. 35, 916-921 (1996).

Invited talk

1995

S.Cova, A.Lacaita, F.Zappa, P.Lovati, "Avalanche photodiodes for near-infrared photon counting", SPIE Photonics West Conf. 2388 Advances in Fluorescence sensing Technology II , San Jose, CA, USA, Febr 6-7, 1995, Proc. SPIE 2388, paper 09, pp.56-66 ed. by J.Lakowicz

1994

S.Cova, A.Lacaita, P.Lovati, F.Zappa, "Performance of near-infrared single-photon detectors in laser ranging measurements", 9th International Workshop on Laser Ranging Instrumentation, Canberra, Australia, Nov. 7-11, 1994, pp. 475-482, Vol. 2, in Laser Ranging Instrumentation 94, ed. by J. McK. Luck, Australian Government Publication Service (1994) - ISBN 0 644 47427 0

A.Lacaita, F.Zappa and S.Cova, "Performance of Germanium and III-V avalanche photodiodes in the detection of single-photons in the near infrared", ICAPT94 Int.Conf. on Applications of Photonic Technology, Toronto, Canada, June 21-23, 1994, pp. 457-460 in "Applications of Photonic Technology", ed. by G.A. Lampropoulos, J. Chrostowski and R.M. Measures, Plenum Press, New York and London 1995 - ISBN 0-306-45011-9.

Papers cited 10 times or more

1994

A.Lacaita, P.A.Francesc, F.Zappa, S.Cova, "Single photon detection beyond 1 micron: performance of commercially available germanium photodiodes", Appl. Opt. 33, 6902-6918 (1994).

F.Zappa, A.Lacaita, S.Cova, P.Webb, "Nanosecond single-photon timing with InGaAs/InP photodiodes", Opt. Lett., 19, 846-848 (1994).

1993

A. Lacaita, S.Cova, F.Zappa, P.A. Francese, "Sub-nanosecond single-photon timing with commercially available Germanium photodiodes", *Opt. Lett.* 18, 75-77 (1993).

A.Lacaita, S.Cova, M.Ghioni, F.Zappa, "Single Photon Avalanche Diodes with ultrafast pulse response free from slow tails", *IEEE Electron Device Lett.* 14, 360-362 (1993).

A.Lacaita, P.A.Francese, S.Cova, G.Ripamonti, "Single-photon optical-time-domain reflectometer at 1-3mm with 5cm resolution and high sensitivity", *Opt. Lett.* 18, 1110-1112 (1993).

A.Lacaita, M.Ghioni, F.Zappa, G.Ripamonti, S.Cova, "Recent advances in the detection of optical photons with silicon photodiodes", *Nucl.Instr. and Meth.*, A326, 290-294 (1993).

A.Lacaita, S.Cova, A.Spinelli, F.Zappa, "Photon-assisted avalanche spreading in reach-through photodiodes", *Appl. Phys. Lett.* 62, 606-608 (1993).

IEEE Fellowship

1992

IEEE Fellow for contributions to the instrumentation of nuclear electronics, in particular, the conception and demonstration of silicon single-photon detectors.

Invited talk

1992

S.Cova, A. Lacaita, G. Ripamonti, "Performance optimization of detector electronics for millimeter laser ranging", 8th International Workshop on Laser Ranging Instrumentation, Annapolis, MD, May 18-22, 1992, pp. 1-18 / 5 in *Laser Ranging Instrumentation 92*, ed. by J.J.Degnan, NASA Conference Publication 3214 (1992)

F.Zappa, G. Ripamonti, A. Lacaita, S. Cova, C. Samori, "Tracking capabilities of SPADs for laser ranging", 8th International Workshop on Laser Ranging Instrumentation, Annapolis, MD, May 18-22, 1992, pp. 25-30 / 5 in *Laser Ranging Instrumentation 92*, ed. by J.J.Degnan, NASA Conference Publication 3214 (1992).

Papers cited 10 times or more

1992

M.Ghioni, A. Lacaita, G. Ripamonti, S. Cova, "All-silicon avalanche photodiode sensitive at 1.3 micron with picosecond time resolution", IEEE J.Quantum Electron. 28, 2678-2681 (1992).

1991

S.Cova, M.Ghioni and F.Zappa, "Optimum amplification of microchannel plate photomultiplier pulses for picosecond photon timing", Rev. Sci. Instrum. 62, 2596-1601 (1991).

S.Cova, A.Lacaita, G.Ripamonti, "Trapping phenomena in avalanche photodiodes on nanosecond scale", IEEE Electron.Dev.Lett. 12, 685-687, (1991).

1989

S.Cova, A.Lacaita, M.Ghioni, G.Ripamonti, T.A.Louis, "20 ps timing resolution with single-photon avalanche diodes", Rev.Sci.Instrum. 60, 1104-1110 (1989).

Invited talk

1989

A.Lacaita, S.Cova, G.Ripamonti, M.Ghioni, "Single photon timing at picosecond resolution with silicon detectors" 7th International Workshop on Laser Ranging Instrumentation, Matera, Italy Oct. 2-6, 1989, pp. 269-275 in Laser Ranging Instrumentation 90, ed.by C.Veillet, OCA/CERGA, Grasse, France (1990)

Prize "AEI Sezione di Milano" (Associazione Elettrotecnica ed Elettronica Italiana)

1988

Prize "AEI Sezione di Milano" (Associazione Elettrotecnica ed Elettronica Italiana) awarded to paper ""High-resolution and high-sensitivity optical-time-domain reflectometer" by C.G.Bethea, B.F.Levine, S.Cova, G.Ripamonti, Opt.Lett. 13, 233-235 (1988).

Papers cited 10 times or more

1987

S.Cova, G.Ripamonti, A.Lacaita, "Avalanche semiconductor detector for single optical photons with a time resolution of 60 ps", Nucl.Instr.Meth. A253, 482-487 (1987).

Invited talk

1984

S. Cova, "Photodetectors for Measurements of Ultrafast Optical Signals", Keynote Plenary Lecture at the 1984 annual Conference of the SIF Società Italiana di Fisica (Italian Physical Society), Genova, 4-9 October 1984.

1983

S.Cova, A.Longoni, A.Andreoni, R.Cubeddu, "A Semiconductor Detector for Measuring Ultra-Weak Fluorescence Decays with 70 ps FWHM Resolution", IEEE J.Quantum El. QE-19, 630-634, (1983) (JQE Special Issue on Picosecond Phenomena, April 1983).

1982

S.Cova, A.Longoni, G.Ripamonti, "Active-Quenching and Gating Circuits for Single-Photon Avalanche Diodes (SPADs)", IEEE Trans. on Nucl. Sci. NS-29, 599-601, (1982).

1981

S.Cova, A.Longoni, A.Andreoni, "Towards picosecond resolution with single-photon avalanche diodes", Rev. Sci. Instrum. 52, 408-412 (1981).

S.Cova, S.Colombo and I.Freitas , "Automated Regulation of Critical Parameters and Related Design Aspects of Spectroscopy Amplifiers with Time-Invariant Filters" invited paper at the IEEE-NSS 1981 Nuclear Science Symposium, S.Francisco,USA,Oct.21-23, 1981

1980

S.Cova,A.Longoni, A.Andreoni, "Avalanche Photodiodes for Single-Photon Detection", 9th International Symposium on Photon Detectors, Visegrad, Hungary, Sept.9-12, 1980, pp.82-91 in Proc. ed.by J.Schanda, IMEKO-TC2, Budapest.

1979

S.Cova, A.Longoni and I.Freitas, "Versatile Digital Lock-in Detection Technique Application to Spectrofluorometry and Other Fields", Rev. Sci. Instrum. 50, 296-301 (1979).

Annual Prize by AEI (Associazione Elettrotecnica ed Elettronica Italiana)

1976

Annual Prize by AEI (Associazione Elettrotecnica ed Elettronica Italiana) for the best paper on the theme "Sensors and Transducers" at the 76a Riunione Annuale AEI, Bari 1975, awarded to paper B33 "Diodi P-N a

valanga come rivelatori di singoli fotoni: uno studio su funzionamento e prestazioni." by P.Antognetti, S. Cova and A.Longoni.

Biennial Prize "Bauchiero" by AEI (Associazione Elettrotecnica ed Elettronica Italiana)

1973

Biennial Prize "Bauchiero" by AEI (Associazione Elettrotecnica ed Elettronica Italiana) awarded to paper "Misure elettroniche digitali di forme d'onda luminose" by S.Cova, M.Bertolaccini and C.Bussolati presented at 72a Riunione annuale AEI, Venezia 1971.

Invited talk

1973

S.Cova, G.Prenna, G.Mazzini, "Digital microspectrofluorometry by multichannel scaling and single photon detection", invited paper to International Symposium on Fluorescence Microscopy, Measurements and Photochemistry, Lisbon, Portugal, May 24-25, 1973.

S.Cova, D.Dotti, S.Tenconi, "Automated digital measurements of C-V curves and derivatives and of capacitance transients for semiconductor evaluation", invited paper at EEMTIC 1973, 5th Electrical and Electronic Measurement and Test instrument Conference, May 15-17, 1973 Ottawa, Canada.

G.Prenna, G.Mazzini, S.Cova, "Methodological and instrumental aspects of cytofluorometry", keynote invited paper to International Symposium on Fluorescence Microscopy, Measurements and Photochemistry, Lisbon, Portugal, May 24-25, 1973.

Papers cited 10 times or more

1973

S.Cova, M.Bertolaccini, C.Bussolati, "The measurement of luminescence waveforms by single photon techniques", Phys. Stat. Sol. (a) 18, 11-62 (1973).

1972

S.Cova, M.Bertolaccini, C.Bussolati, "Single photon techniques for precision measurements of optical waveforms from radiative decays", invited paper at 13th Scintillation and Semiconductor Counter Symposium, Washington DC, USA, March 1-3, 1972.

Invited talk

1968

M.Bertolaccini, S.Cova, E.Gatti, "A system for linear detection and rejection of pulse pile-up with short resolving time", invited paper at International Symposium on Nuclear Electronics, Versailles, France, Sept. 10-13, 1968.

Papers cited 10 times or more

1968

S.Cova, L.Zappa, "Effective number of annihilation electrons per atom for free positrons in condensed matter.", J.Phys. B (Proc.Phys. Soc.) Ser. 2 Vol.1, 795-801 (1968).

Gold Medal by Politecnico di Milano

1963

Gold Medal by Politecnico di Milano for the best graduate of the year in Nuclear Engineering

Annual Prize "Palazzoli" by AEI Sezione di Milano (Associazione Elettrotecnica ed Elettronica Italiana)

1962

Annual Prize "Palazzoli" by AEI Sezione di Milano (Associazione Elettrotecnica ed Elettronica Italiana) awarded to paper "Amplitude distribution of photomultiplier single electron response", by M.Bertolaccini and S.Cova, Energia Nucleare, 10, 259-267 (1963).