

GUSTAVO CASTRO DO AMARAL

PERSONAL INFORMATION

Born in Rio de Janeiro, Brazil, 29 April 1989

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website [Optoelectronics Laboratory - YouTube Channel](#)

phone +55 21 3527 1686 · + 55 21 98134 8059

FORMAL EDUCATION / DEGREE

2014–2016 PhD – Electrical Engineering

PhD Theses

“Linear-Optic Two-Photon Interference with Coherent States”.

Advisor: Guilherme Penello Temporão (PUC-Rio, Brazil)

Co-Advisor: Jean Pierre von der Weid (PUC-Rio, Brazil)

Pontifical Catholic University of Rio de Janeiro, Brazil

2012–2014 MSc – Electrical Engineering

MSc Thesis

“FPGA Application on Single-Photon Detection Systems”.

Advisor: Guilherme Penello Temporão (PUC-Rio, Brazil)

Pontifical Catholic University of Rio de Janeiro, Brazil

2007–2012 Graduation – Electrical Engineering

Major Paper

“Qubits and Entropy: A Quantum Mechanical Approach to Information Theory”.

Advisor: Weiler Alves Finamore (PUC-Rio, Brazil)

Pontifical Catholic University of Rio de Janeiro, Brazil

WORK EXPERIENCE

2017–Actual Assistant Professor

Professor Position

Center for Telecommunication Studies (CETUC), PUC-Rio

Pontifical Catholic University of Rio de Janeiro, Brazil

2016–2017 Research Engineer

Research Position

Optoelectronics Laboratory, CETUC, PUC-Rio

Pontifical Catholic University of Rio de Janeiro, Brazil

PARTICIPATION IN COMMITTEES

2016 Andrea Baldivieso

MSc Thesis

Monitoramento em Redes de Acesso Híbridas Fibra Óptica/Cabo de Cobre

Pontifical Catholic University of Rio de Janeiro, Brazil

BIBLIOGRAPHICAL PRODUCTION

Articles in Scientific Journals

2016 Single-Ended In-Service Hybrid Monitoring of
Fiber-Extended Copper Lines

Publication Info

JOURNAL OF OPTICAL COMMUNICATIONS AND NETWORKING, v. –, p. –

Authors: Gustavo Castro do AMARAL, Andrea BALDIVIESO, Patryk URBAN, and
Jean Pierre VON DER WEID

- 2017 Experimental Demonstration of SCM-PON Monitoring with Baseband Embedded OTDR
Publication Info FIBER AND INTEGRATED OPTICS, v. 1, p. 1–9
Authors: Diego Rodrigo Villafani CABALLERO, Luis Ernesto Ynoquio HERRERA, Gustavo Castro do AMARAL, Patryk URBAN, and Jean Pierre VON DER WEID
- 2016 Time-Polarization Multiplexing for Increased Output Power of Semiconductor Optical Amplifiers in Pulsed Regime
Publication Info APPLIED OPTICS, v. 55, p. 7878–7884
Authors: Gustavo Castro do AMARAL, Marcelo Moraes RESENDE, Luis Ernesto Ynoquio HERRERA, Guilherme Penello TEMPORÃO, Patryk URBAN, and Jean Pierre VON DER WEID
- 2016 Quantum Random Number Generator Enhanced by Weak Coherent States Interference
Publication Info OPTICS EXPRESS, v. 24, p. 19574–19580
Authors: Thiago FERREIRA DA SILVA, Guilherme Barreto XAVIER, Gustavo Castro do AMARAL, Guilherme Penello TEMPORÃO, and Jean Pierre VON DER WEID
- 2016 Few-Photon Heterodyne Spectroscopy
Publication Info OPTICS LETTERS, v. 41, p. 1502–1505
Authors: Gustavo Castro do AMARAL, Thiago FERREIRA DA SILVA, Guilherme Penello TEMPORÃO, and Jean Pierre VON DER WEID
- 2016 Fiber Monitoring Using a Subcarrier Band in a Subcarrier Multiplexed Radio-over-Fiber Transmission System for Application in Analog Mobile Fronthaul
Publication Info JOURNAL OF LIGHTWAVE TECHNOLOGY, v. 34, p. 3118–3125
Authors: Patryk URBAN, Gustavo Castro do AMARAL, and Jean Pierre VON DER WEID
- 2016 Adaptive Filter for Automatic Identification of Multiple Faults in a Noisy OTDR Profile
Publication Info JOURNAL OF LIGHTWAVE TECHNOLOGY, v. 34, p. 3428–3424
Authors: Jean Pierre VON DER WEID, Mario Henrique SOUTO, Joaquim Dias GARCIA, and Gustavo Castro do AMARAL
- 2016 Investigation of Bend Loss in Single Mode Fibers with Ultra-High-Resolution Photon-Counting Optical Time Domain Reflectometer
Publication Info APPLIED OPTICS, v. 55, p. 1177–1182
Authors: Luis Ernesto Ynoquio HERRERA, Gustavo Castro do AMARAL, and Jean Pierre VON DER WEID
- 2015 Safeguarding Quantum Key Distribution Through Detection Randomization
Publication Info IEEE JOURNAL OF SELECTED TOPICS IN QUANTUM ELECTRONICS, v. 21, p. 1–9
Authors: Thiago FERREIRA DA SILVA, Gustavo Castro do AMARAL, Guilherme Barreto XAVIER, Guilherme Penello TEMPORÃO, and Jean Pierre VON DER WEID
- 2015 Spectral Characterization of Weak Coherent State Sources based on Two-Photon Interference
Publication Info JOURNAL OF THE OPTICAL SOCIETY OF AMERICA B, v. 32, p. 545

Authors: Thiago FERREIRA DA SILVA, Gustavo Castro do AMARAL, Douglas VITORETI, Guilherme Penello TEMPORÃO, and Jean Pierre VON DER WEID

2015 Automatic Fault Detection in WDM-PON with Tunable Photon Counting OTDR

Publication Info

JOURNAL OF LIGHTWAVE TECHNOLOGY, v. 55, p. 1177–1182
 Authors: Gustavo Castro do AMARAL, Joaquim Dias GARCIA, Luis Ernesto Ynoquio HERRERA, Guilherme Penello TEMPORÃO, Patryk URBAN, and Jean Pierre VON DER WEID

2015 Linear-Optic Heralded Photon Source

Publication Info

PHYSICAL REVIEW A, v. 92, p. 033855
 Authors: Thiago FERREIRA DA SILVA, Gustavo Castro do AMARAL, Guilherme Penello TEMPORÃO, and Jean Pierre VON DER WEID

2014 WDM-PON Monitoring with Tunable Photon Counting OTDR

Publication Info

PHOTONICS TECHNOLOGY LETTERS, v. 26, p. 1-1
 Authors: Gustavo Castro do AMARAL, Luis Ernesto Ynoquio HERRERA, Douglas VITORETI, Guilherme Penello TEMPORÃO, Patryk URBAN, and Jean Pierre VON DER WEID

2013 Proof-of-Principle Demonstration of Measurement-Device-Independent Quantum Key Distribution using Polarization Qubits

Publication Info

PHYSICAL REVIEW A, v. 88, p. 052303
 Authors: Thiago FERREIRA DA SILVA, Douglas VITORETI, Guilherme Barreto XAVIER, Gustavo Castro do AMARAL, Guilherme Penello TEMPORÃO, and Jean Pierre VON DER WEID

Patents

2016 Method and Device for In-Service Monitoring of Optical Fibres

Publication Info

INTERNATIONAL PATENT APPLICATION, PCT/SE2016/050348
 Authors: Diego Rodrigo Villafani CABALLERO, Gustavo Castro do AMARAL, Luis Ernesto Ynoquio HERRERA, and Jean Pierre VON DER WEID

2015 Device and Method for Monitoring Optical Fibre Link

Publication Info

INTERNATIONAL PATENT APPLICATION, PCT/SE2015/050898
 Authors: Gustavo Castro do AMARAL, Diego Rodrigo Villafani CABALLERO, and Jean Pierre VON DER WEID

2015 Monitoring Optical Fibre Link

Publication Info

INTERNATIONAL PATENT APPLICATION, PCT/SE2015/050051
 Authors: Gustavo Castro do AMARAL, Diego Rodrigo Villafani CABALLERO, Renata Goldman LEIBEL, and Jean Pierre VON DER WEID

Complete Works Published in Proceeding of Conferences

2016 Spectral Which Way Information in a Hong-Ou-Mandel Interferometer

Publication Info

QUANTUM OPTICS VIII, p. –

Authors: Gustavo Castro do AMARAL, Thiago FERREIRA DA SILVA, Guilherme Penello TEMPORÃO, and Jean Pierre VON DER WEID

- 2016 Experimental Demonstration of SCM-PON Monitoring with Baseband Embedded OTDR
Publication Info FOAN 2016, p. –
 Authors: Diego Villafani CABALLERO, Luis Ernesto Ynoquio HERRERA, Gustavo Castro do AMARAL, Patryk URBAN, and Jean Pierre VON DER WEID
- 2016 Sub-Poisson States Heralded at a Hong-Ou-Mandel Interference Peak
Publication Info QCMC 2016, p. **P2-205**
 Authors: Gustavo Castro do AMARAL, Felipe CALLIARI, Thiago FERREIRA DA SILVA, Guilherme Penello TEMPORÃO, and Jean Pierre VON DER WEID
- 2016 Few-Photon Heterodyne Spectroscopy
Publication Info QCMC 2016, p. **P2-187**
 Authors: Gustavo Castro do AMARAL, Thiago FERREIRA DA SILVA, Guilherme Penello TEMPORÃO, and Jean Pierre VON DER WEID
- 2016 Single-Ended In-Service Hybrid Monitoring of Fibre-Extended Copper Lines
Publication Info EUROPEAN CONFERENCE AND EXHIBITION ON OPTICAL COMMUNICATION, p. **Th.2.P2.SC4: Subsystems for Optical Networking and Datacoms (3rd paper)**
 Authors: Gustavo Castro do AMARAL, Andrea BALDIVIESO, Joaquim Dias GARCIA, Patryk URBAN, and Jean Pierre VON DER WEID
- 2016 ℓ_1 Adaptive Trend Filter via Fast Coordinate Descent
Publication Info IEEE SENSOR ARRAY AND MULTICHANNEL SIGNAL PROCESSING WORKSHOP, p. **OPT II - 1**
 Authors: Mario Henrique SOUTO, Joaquim Dias GARCIA, and Gustavo Castro do AMARAL
- 2016 A Polarization Tracking Algorithm for Lithium-Niobate-based Polarization Controllers
Publication Info IEEE SENSOR ARRAY AND MULTICHANNEL SIGNAL PROCESSING WORKSHOP, p. **OPT II - 3**
 Authors: Joaquim Dias GARCIA, Gustavo Castro do AMARAL
- 2016 High Resolution Automatic Fault Detection in a Fiber Optic Link via Photon Counting OTDR
Publication Info OPTICAL FIBER COMMUNICATION CONFERENCE, p. **M3E.4**
 Authors: Luis Ernesto Ynoquio HERRERA, Felipe CALLIARI, Joaquim Dias GARCIA, Gustavo Castro do AMARAL, and Jean Pierre VON DER WEID
- 2015 Ultra-High-Resolution Tunable PC-OTDR for PON Monitoring in Avionics
Publication Info OPTICAL FIBER COMMUNICATION CONFERENCE, p. **W2A.39**
 Authors: Luis Ernesto Ynoquio HERRERA, Gustavo Castro do AMARAL, and Jean Pierre VON DER WEID

CONFERENCE PRESENTATIONS

- 2016 Spectral Which Way Information in a Hong-Ou-Mandel Interferometer

Quantum Optics VIII Maresias · Poster Presentation

2016 Few-Photon Heterodyne Spectroscopy

QCMC 2016 Singapore · Poster Presentation

2016 Sub-Poisson States Heralded at a
Hong-Ou-Mandel Interference Peak

QCMC 2016 Singapore · Poster Presentation

2015 Spectral Characterization of Weak Coherent State
Sources based on Two-Photon Interference

QCrypt 2015 Tokyo · Poster Presentation

2015 Ultra-High-Resolution Tunable PC-OTDR for
PON Monitoring in Avionics

OFC 2015 Los Angeles · Poster Presentation

2014 Proof-of-Principle Demonstration of
Measurement-Device-Independent Quantum Key
Distribution using Polarization Qubits

QCrypt 2014 Paris · Poster Presentation

SEMINAR TALKS

2016 Linear-Optic Two-Photon Interference with
Coherent States

University of Calgary · Department of Physics and Astronomy

ACADEMIC ADVISORY

Concluded Major Papers

2015 FSK Demodulation with FPGA

Author: Rudah Maciel GUEDES

Advisor: Marco Antônio GRIVET

Co-Advisor: Gustavo Castro do AMARAL

2015 An Electronic Driver for Lithium-Niobate-based
Polarization Controllers

Author: Vinicius de Mello LIMA

Advisor: Eduardo Costa da SILVA

Co-Advisor: Gustavo Castro do AMARAL

2015 Fast Fourier Transform with FPGA

Author: Rafael Tourinho AOUDE

Advisor: Marco Antônio GRIVET

Co-Advisor: Gustavo Castro do AMARAL

2015 FPGA-based Graphical Interface for the Analysis
of the State of Polarization of Light

Author: Felipe CALLIARI

Advisor: Jean Pierre VON DER WEID

Co-Advisor: Gustavo Castro do AMARAL

Scientific Initiation

2015 Electronic Interface for Semiconductor Optical
Amplifiers in Pulsed Regime

Author: Henrique Pinheiro SARAIVA
Advisor: Guilherme Penello TEMPORÃO
Co-Advisor: Gustavo Castro do AMARAL

2016 Spectral and Spatial Fiber Bragg Grating
Characterization with Ultra-High-Resolution
Photon Counting OTDR

Author: Marcelo Moraes RESENDE
Advisor: Jean Pierre VON DER WEID
Co-Advisor: Gustavo Castro do AMARAL

2016 A Polarization Tracking Algorithm for
Lithium-Niobate-based Polarization Controllers

Author: Joaquim Dias GARCIA
Advisor: Jean Pierre VON DER WEID
Co-Advisor: Gustavo Castro do AMARAL

2014 FPGA-based Graphical Interface for the Analysis
of the State of Polarization of Light

Author: Felipe CALLIARI
Advisor: Jean Pierre VON DER WEID
Co-Advisor: Gustavo Castro do AMARAL

OTHER INFORMATION

Awards 2016 · International Conference on Quantum Communication, Measurement
and Computing (QCMC) Student Support

Languages PORTUGUESE · Mothertongue
ENGLISH · Advanced (Full Professional Proficiency)
FRENCH · Basic (No Proficiency)

January 27, 2017