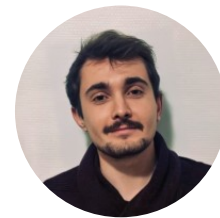


Brian Siquin / Ph.D in photonics

Looking for a postdoctoral position

🇫🇷 French Age: 27 📞 (+33)6 52 40 41 62 📍 Rennes, France
✉ brian.siquin@gmail.com 🔗 linkedin.com/in/brian-siquin/



WORK EXPERIENCE

Ph.D (defended the 14/12/2023)

INSA, Univ. Rennes, Institut FOTON UMR 6082 Équipe DOP

📅 2020 – 2023

📍 Rennes, France

Direct-modulation optoelectronic oscillator. Microwave synthesis and short optical pulses generation | tel-04461814v1

Supervisor: Dr. Marco Romanelli (marco.romanelli@univ-rennes.fr)

- Realisation and optimisation of a direct-modulation OEO (OptoElectronic Oscillator) showing a very low phase noise 10 GHz microwave signal (single and dual loop architectures).
- Design and realization of optical pulse compression in optical fibers (dispersion, Kerr non-linearity), generation of very low jitter picosecond pulses at a rate of 10 GHz.
- Photonics (OSA, Auto-correlateur, RIN) and microwave (ESA, VNA, phase-noise, amplifiers, RF filters) characterizations in collaboration with the technical support team (engineers in optics, electronics).
- Novel, accurate and simple method for the measurement of the linewidth enhancement factor (complex field reconstruction by interferometry).
- Numerical simulation of a laser signal (amplitude and phase) and its nonlinear propagation in an optical fiber.
- Laser wavelength locking (DFB and free space) using the PDH and Tilt-locking techniques on ULE cavities, application to new OEO architectures.

2nd year Master internship

SensUp (by Lumibird)

📅 february – july 2020

📍 Lannion, France

Characterization and optimisation of a heterodyne fiber LiDAR

Supervisor : Gildas Gueguen (ggueguen@sensup-tech.com)

- Characterization of a fiber LiDAR system (fibers, amplifiers, laser, photodiodes).
- Numerical simulation (Matlab) of atmospheric optical propagation (Gaussian beams) and signal analysis.
- Software development, signal sampling and analysis (Qt/C++) for real-time wind speed (Doppler effect, heterodyne detection) cartography (1D).

1st year Master internship

OPTIMAG (Université de Bretagne Occidentale)

📅 april – june 2019

📍 Brest, France

Ultra-fast measurement of optical activity by swept-wavelength polarimetry

Supervisor : Matthieu Dubreuil (matthieu.dubreuil@univ-brest.fr)

- Modelization of a polarimetric setup (Jones formalism and Fourier analysis) which spectrally encodes the optical activity of a sample (chiral) using a swept-wavelength laser source.
- Numerical simulation of the system (Mathematica) : sensibility to alignment errors and to noise sources.

EDUCATION

Master of Science in Photonics

Université de Bretagne Occidentale, Université de Rennes

📅 2019 – 2020

📍 Brest-Rennes

- Integrated optics
 - LASERs & Telecommunication
 - Optical propagation & Scattering media
 - Bibliographic project : Supercontinuum generation in micro-structured optical fibers
- With high honors–head of the class

1st year MSc in fundamental physics and applications

Université de Bretagne Occidentale

📅 2018 – 2019

📍 Brest

- Signal theory
 - Nonlinear & anisotropic optics
 - Statistical physics
 - Condensed matter
- With honours–head of the class

Bachelor of physics

Université de Bretagne Occidentale

📅 2015 – 2018

📍 Brest

With highest honors–head of the class

SKILLS

Science

- Laser's physics
- Nonlinear optics
- Microwave photonics
- Dynamical systems
- Experimental techniques
- Signal theory and analysis

Computing

- Coding & Simulation

Julia

Python

Matlab

C/C++

- Softwares

LabView

Languages

- English (Fluent)
- French (Native)
- Breton (Bilingual)

SCIENTIFIC ACTIVITY

Publications

- 2 published articles (first author)

Communications

- 6 orals (3 internationals / 3 nationals)
- 3 posters

ACADEMIC ACTIVITY

Teaching

- 58 h (Bachelor & Master degree)

Supervising

- 4 internships and projects (Bachelor & Master degree)

PEER REVIEWED JOURNAL PUBLICATIONS


- Brian Sinquin et al. "Low Phase Noise Direct-Modulation Optoelectronic Oscillator". In: *Journal of Lightwave Technology* 39.24 (2021), pp. 7788–7793. DOI: [10.1109/JLT.2021.3111703](https://doi.org/10.1109/JLT.2021.3111703)
- Brian Sinquin and Marco Romanelli. "Determination of the linewidth enhancement factor of semiconductor lasers by complete optical field reconstruction". In: *Opt. Lett.* 48.4 (2023), pp. 863–866. DOI: [10.1364/OL.483776](https://doi.org/10.1364/OL.483776)

PEER REVIEWED INTERNATIONAL CONFERENCES

CLEO®/Europe-EQEC 2021

Conference on Lasers and Electro-Optics

 21–25 june 2021

 Visioconference


- Brian Sinquin et al. "Low phase noise microwave generation from a direct-modulation optoelectronic oscillator (DM-OEO)". in: *2021 Conference on Lasers and Electro-Optics Europe & European Quantum Electronics Conference (CLEO/Europe-EQEC)*. 2021, pp. 1–1. DOI: [10.1109/CLEO/Europe-EQEC52157.2021.9542636](https://doi.org/10.1109/CLEO/Europe-EQEC52157.2021.9542636)

15 minutes talk / visioconference (COVID)

CLEO®/Europe-EQEC 2023

Conference on Lasers and Electro-Optics

 26–30 june 2023


 Munich – Germany


- Brian Sinquin et al. "Direct-Modulation Optoelectronic Oscillator for Optical Frequency Comb and Pulse Generation". In: *2023 Conference on Lasers and Electro-Optics Europe & European Quantum Electronics Conference (CLEO/Europe-EQEC)*. 2023, pp. 1–1. DOI: [10.1109/CLEO/Europe-EQEC57999.2023.10231990](https://doi.org/10.1109/CLEO/Europe-EQEC57999.2023.10231990)

15 minutes talk

CLEO®/Europe-EQEC 2023

Conference on Lasers and Electro-Optics

 26–30 june 2023

 Munich – Germany

- Brian Sinquin and Marco Romanelli. "Accurate Measurement of the Linewidth Enhancement Factor of Semiconductor Lasers by a Simple Technique". In: *2023 Conference on Lasers and Electro-Optics Europe & European Quantum Electronics Conference (CLEO/Europe-EQEC)*. 2023, pp. 1–1. DOI: [10.1109/CLEO/Europe-EQEC57999.2023.10231566](https://doi.org/10.1109/CLEO/Europe-EQEC57999.2023.10231566)


15 minutes talk

NATIONAL CONFERENCES (FRENCH)

Journée du Club Optique Micro-ondes 2021

Société Française d'Optique

 4 june 2021

 Visioconference


Signaux Opto-RF très bas bruit de phase et instabilités dynamiques d'un OEO à modulation directe

15 minutes talk / visioconference (COVID) | [hal-03285993](https://hal.archives-ouvertes.fr/hal-03285993)

OPTIQUE Dijon 2021

Société Française d'Optique

 5–9 july 2021


 Dijon – France


Oscillateur Opto-Électronique à modulation directe de faible bruit de phase

A poster was presented during this conference | [hal-03284744](https://hal.archives-ouvertes.fr/hal-03284744)

OPTIQUE Nice 2022

Société Française d'Optique

 4–8 july 2022

 Nice – France


Génération de peignes de fréquence et d'impulsions dans un Oscillateur Opto-Électronique à modulation directe

15 minutes talk | [hal-03988116](https://hal.archives-ouvertes.fr/hal-03988116)

Journée du Club Optique Micro-ondes 2022

Société Française d'Optique

 13 june 2022

 Besançon – France


Oscillateur optoélectronique (OEO) générant des peignes de fréquences et des trains d'impulsions optiques

A poster was presented during this conference | [hal-03986413](https://hal.archives-ouvertes.fr/hal-03986413)

Journée du Club Optique Micro-ondes 2023

Société Française d'Optique

 19 june 2023

 Visioconference

Direct-Modulation OEO for Optical Pulses and Frequency combs generation

A poster was presented during this online conference | [hal-04133619](https://hal.archives-ouvertes.fr/hal-04133619)

OTHER SCIENTIFIC COMMUNICATIONS

Antennes et circuits: des micro-ondes aux ondes millimétriques et THz

GDR Ondes 2021

 18 march 2021

 Visioconference


Low phase noise direct-modulation Optoelectronic Oscillator

15 minutes talk / visioconference (COVID) |  <https://www.youtube.com/watch?v=NiCSm7F7ba8>

TEACHING EXPERIENCE

Université de Rennes 1

UFR SPM

 2020-2022

 Rennes - France

- **Practical Work** - Geometrical Optics (**1st year Physics Bachelor**) - 16h
- **Tutorial class** - Electromagnetism (**2nd year Physics Bachelor**) - 18h
- **Tutorial class** - Signals and systems theory for the physician (**3rd year Physics Bachelor**) - 20h
- **Practical Work** - LASER (**1st year Physics Master**) - 4h

SUPERVISING

1st year Master internship

1 month and a half

 2021

 Rennes - France

Laser semiconducteur stabilisé sur cavité Fabry-Perot : applications à une nouvelle architecture d'OEO

2nd year Master project

3 month

 2022

 Rennes - France

Oscillateur Optoélectronique avec source laser stabilisée par Tilt-Locking

1st year Master internship

1 month and a half

 2022

 Rennes - France

Laser semiconducteur stabilisé sur cavité ULE compacte: application à de nouvelles architectures d'OEO

3rd year Bachelor internship

1 month and a half

 2023

 Rennes - France

Oscillateur Optoélectronique à modulation directe