

Felipe Salgado

Dr. rer. nat. in Physics

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Contact



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felipecsalgado.de

Education

PhD. in Physics (summa cum laude)

2019 - 2023

Friedrich-Schiller-Universität Jena

MSc. in Photonics (grade: 1.3)

2016 - 2018

Friedrich-Schiller-Universität Jena

BEng. in Electrical Engineering (8.1/10)

2010 - 2016

Federal University of Itajubá (Brazil)

Expertises

Programming:

Python, C/C++, C#, LabView, GEANT4, LaTeX, Github

Optics/Photonics:

Optical components, high-intensity lasers, fiber optics

Physics:

Strong-field QED, plasma physics, laser-matter interaction, LWFA, X-rays

Engineering:

Autodesk Inventor, COMSOL, electronics, control systems, technical discussions

Computing :

Linux distributions, high-Performance computing, numerics and data analysis

Experience

February 2023 - Currently

Friedrich-Schiller-Universität Jena

Wissenschaftler Mitarbeiter, Postdoctoral Researcher

Project: Electron-positron pair production in the non-perturbative from quantum vacuum

International collaboration:

- Experiment-320 at FACET-II, SLAC National Accelerator Laboratory (USA).

Main Tasks

- Execution of experiments at high-intensity laser facilities (JETi200, CALA)
- Design of optics, optomechanical, and mechanical components
- Fabrication of micrometer targets for experiments
- Project organization and supervision of students
- Scientific writing of peer-reviewed papers and conference talks
- Maintenance of High-Power Computer and Storage Cloud servers

February 2018 - January 2023

Friedrich-Schiller-Universität Jena

Wissenschaftler Mitarbeiter, PhD. Student

Project: Strong-field quantum electrodynamics (SF-QED) in intense laser interactions

International collaboration

- Experiment-320 at FACET-II, SLAC National Accelerator Laboratory (USA).
- Breit-Wheeler and radiation reaction experiment at Rutherford Appleton Laboratory (UK)

Main Tasks

- Development of a single-particle detection system for strong-field QED experiments.
- Design of a functional experiment at the Centre for Advanced Laser Applications (CALA), Munich (Germany)
- Computer simulations using GEANT4, SMILEI (PIC code) and data analysis
- CAD drawings of mechanical parts for the experiment

2015 - 2016

CPqD, Research and Development Center in Telecommunications

Research & Development Intern

Projects: Distributed Temperature (Raman effect-based), acoustic, and optical gas detection sensor systems

- Optical Gas Detection System based on absorption spectroscopy
- Development of an Optical Time-Domain Reflectometer (OTDR) using FPGA and high-speed ADC for sensing applications
- Auxiliary software in Java to easily create networks of fiber Bragg grating sensors

Supervision of students

2023-Now Alperen Kozan

Friedrich-Schiller-Universität Jena

Degree: Master of Science in Physics

2020 Jannes Wulff

Friedrich-Schiller-Universität Jena

Degree: Bachelor of Science in Physics

Soft Skills

- Problem solving
- Teamwork
- Organization
- Time Management
- Analytical and Logical Thinking
- Presentations

Languages

Portuguese (mother)	●●●●●
English (fluent)	●●●●●
German (TELC B1)	●●●●●

Hobbies

- Sports
- Travel

Relevant peer-reviewed publications

Citations: 299 h-index: 7

F. C. Salgado et al., "Single particle detection system for strong-field QED experiments," New J. Phys. **24**, 2022

F. C. Salgado et al., "Towards pair production in the non-perturbative regime," New J. Phys. **23**, 2021

K. v. Grafenstein et al., "Laser-accelerated electron beams at 1 GeV using optically-induced shock injection," Sci. Rep. **13**, 2023

B. Kettle et al., "A laser-plasma platform for photon-photon physics: the two photon Breit-Wheeler process," New J. Phys. **23**, 2021

H. Abramowicz et al., "Conceptual design report for the LUXE experiment," Eur. Phys. J.: Spec. Top. **230**, no. 11, 2021

J.B. Rosolem, F. R. Bassan, D. E. Freitas, **F. C. Salgado**, "Raman DTS Based on OTDR Improved by Using Gain-Controlled EDFA and Pre-Shaped Simplex Code," IEEE Sens. J. **17**, 2017

Patents

F. R. Bassan, **F. C. Salgado**, J. B. Rosolem, "System for Measuring Distributed Temperature with Pre-Compensated Signal Amplification". Patent deposit: 17/08/2015:
Register number: BR1020150196792, Instituto Nacional da Propriedade Industrial (Brazil).

C. Floridaia, et al., "Method and System for Detection and Recognition Remotely of Gases in Real-Time Using Fiber Optics". Patent deposit: 13/06/2016:
Register number: BR10201601357, Instituto Nacional da Propriedade Industrial (Brazil).

Honors and Awards

2022 Poster Prize Winner

Issued by: IBS Conference on Ultra-High Intensity Lasers (ICUIL 2022)

Title of work: Towards Probing Pair-Production in the Non-Perturbative Regime at CALA

2021 Inventor Award of 2020

Issued by: Petrobrás

Title of work: Remote Method and Detection System for Identification of Gases in Real-Time Using Optical Fibers

Complementary Certifications

Sep 2023 TELC Deutsch B1

Grade: 255/300

Issued by: Thüringer Volkshochschulverband e.V.

Mar 2017 **Teaching Natural Science in Higher Education**

Training Hours: 8 h

Issued by: Schiller & Mertens, Jena, Germany

Feb 2012 **Advanced Course - Focus on Communication**

Training Hours: 60 h

Issued by: OMNICOM School of Languages, Toronto, Canada

Jul 2011 **LabVIEW CORE I & II**

Training Hours: 30 h

Issued by: National Instruments NI, São José dos Campos, Brazil

Jena, January 5th 2024

