

LUCAS RODA XIMENES DOS SANTOS

Undergraduate student

@ lcsximenes@usp.br +55 11 94047-1765 São Paulo, Brazil
@jimeens_ 3368536085309957 0000-0003-4243-7326

jimeens.github.io



EDUCATION

BSc in Physics

Institute of Physics - University of São Paulo

March 2020 - Ongoing São Paulo, Brazil

FELLOWSHIPS

Thin-films thermal sensors for low temperature heat transport

National Council for Scientific and Technological Development (CNPq)

September 2022 - February 2023 São Paulo, Brazil

Grant No.129683/2022-1

Granted in order to purpose my undergraduate research project.
Advisor: Valentina Martelli

Transcription of Quantum Mechanics Lecture Notes

Unified Scholarship Program (PUB)

August 2023 - August 2024 São Paulo, Brazil

Granted in order to purpose my undergraduate reserach project.
Advisor: Alexandre A. Suaide

AUTORAL PROJECTS

Theoretical fundamentals of quantum mechanics

Lecture notes

August 2022 - Ongoing

A set of notes made on quantum mechanics started in the second half of 2022 and are constantly updated. The text is written in Portuguese (The 1st part is available [here](#), and the second [here](#))

Co-authors: Felipe Gimenez and Alexandre Suaide

RESEARCH INTERESTS

Broadly

- How can we describe Quantum Field Theory in a mathematically rigorous way?
- Can category theory be one of the tools to describe quantum gravity?

Specifically

- Algebraic Quantum Field Theory;
- Quantum Gravity;
- General Relativity.

MY LIFE PHILOSOPHY

"It's all there, you just have to figure it out and equate it."

STRENGTHS

Hard-working

Detailer

Rapid Learning

LaTeX

Python

Mathematica

Photoshop

LANGUAGES

Portuguese (native)



Comprehends well, speaks well, reads well, writes well.

English (intermediate)



Comprehends reasonably, speaks little, reads Reasonably, writes Reasonably.

German (basic)



Comprehends little, speaks little, reads little, writes little.

PUBLICATIONS

Journal Articles

- F. G. Souza, G. C. Grime, and I. L. Caldas, "Standard twist and non-twist maps," *Revista Brasileira de Ensino de Física*, vol. 45, 2023. DOI: 10.1590/1806-9126-RBEF-2022-0333, (I collaborate in this paper, my name is in Acknowledgments).

EVENTS

Summer course of Physics

IF-USP

 February 06 – 10, 2023

 São Paulo, Brazil

 Control code: 2624-EJWZ-BMTQ-I2XG

I participated in the SUMMER COURSE, held from February 06 to 10, 2023 at the Institute of Physics of the University of São Paulo, coordinated by the Research Committee, with a workload of 45 hours of activities, consisting of Mini-courses and Seminars.

SAIFR–Perimeter Journeys in Theoretical Physics

IFT-UNESP

 July 17 – 23, 2032

 São Paulo, Brazil

 Certificate: [Click here](#)

I participated in the 2023 Journey's program, where I had the opportunity to get to know IFT-UNESP and attend various courses covering topics ranging from Supersymmetry to Machine Learning. The course lasted for 7 days, with five days dedicated to lectures and two days for general physics knowledge and course-related exams. In total, it amounted to approximately 30 hours of activities.

V Escola de Física Jayme Tiomno

IF-USP

 September 4 – 8, 2023

 São Paulo, Brazil

 Certificate: Not Yet issued

I attended the V Escola de Física Jayme Tiomno organized by the Dead Physics Society (DPS), where I learned more about the area I intend to work in (AQFT/TQFT). I took the course "Introdução à Teoria de Categorias", taught by Ph.D. candidate Ana Camila Costa Esteves, which helped me gain insights into the tools available in quantum field theories. I also expanded my knowledge of quantum field theory with the course "Teoria Quântica de Campos à Temperatura Finita", taught by Ph.D. candidate Gustavo Sadao Soares Sakoda. Lastly, I enhanced my self-organization skills with the course "Self-Organization, Complexity, and Emergence," taught by Professor Osvaldo Pessoa. In total, it was 30 hours of activities, not including the insightful post-lecture discussions with the instructors.

REFEREES

Prof. Alexandre A. Suaide

 Dept. of Nuclear Physics

 suaide@usp.br

Institute of Physics - HEPIC - Room 208
