

Juan Pablo Ibieta Jimenez

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Summary

- Mathematical Physics Ph. D. candidate at the University of São Paulo;
- Works in the intersection between Quantum Physics and Mathematics, in particular the so called *Topological phases of matter* since 2012. Since 2017, Data Science and Machine Learning are a main activity;
- Experience with data visualization, analysis, time series and simulations.
- Teaches Mathematics and Physics at different levels since 2003;
- Passionate about programming, mathematics, science, philosophy and music with strong interpersonal communication skills;
- Fluency in English, Spanish and Portuguese and Good understanding in French.

Experience

- **Junior Researcher / Teaching Assistant** **São Paulo**
Universidade de São Paulo, Math. Physics Department, Brazil *Aug 2012 – Present*
 - Actively collaborating with the Topological Quantum Field Theory lead by Prof. Dr. Paulo Teotônio Sobrinho.
 - Working in Deep Learning solutions for Question/Answer Bots using Natural Language Processing (NLP). Computer Vision for the detection of Astrophysical Objects, in particular using CNNs for this task.
 - Actively collaborating in the Data Science group at the Department.
 - Taught various Physics and Mathematics courses as teaching assistant to engineering and science students at the undergraduate and graduate levels.
- **Visiting Professor** **La Paz**
Universidad Mayor de San Andrés, Physics Department, Bolívia *Jan 2018*
Taught the *Group Theory and Physics* course at the 1st Summer School.
- **Online Tutor** **La Paz**
Smarthinking.com / Latinhire.com, Bolivia *Jul 2008 – Dec 2013*
 - Worked as an online tutor of Mathematics and Physics for the Smarthinking.com service through Latinhire.com.
 - Tutoring sessions were mostly in English.
- **Junior Researcher / Teaching Assistant** **La Paz**
Universidad Mayor de San Andrés, Physics Department, Bolivia *Feb 2005 – Aug 2010*
 - "Cum Laude" graduation for a small research project on Loop Quantum Gravity.
 - Actively collaborated with the Complex Systems Group.
 - Taught Physics and Mathematics to engineering and science students at the undergraduate and graduate levels.

Education

- **University of Sao Paulo (USP)** **São Paulo, Brazil**
Graduate, Ph. D. in Physics
Mathematical Physics Department, Physics Institute
May 2015 – Present
- **University of Sao Paulo (USP)** **São Paulo, Brazil**
Graduate, M.Sc. in Physics
Mathematical Physics Department, Physics Institute
Aug 2012 – Apr 2015
- **Universidad Católica Boliviana - San Pablo (UCB)** **La Paz, Bolivia**
Graduate, Diploma on Higher Education
Department of Education
Jul 2011 – Jan 2012
- **Universidad Mayor de San Andrés (UMSA)** **La Paz, Bolivia**
Undergraduate, Bachelor in Physics
Physics Department
February 2004 – July 2010

Selected papers

- **Deformed quantum double realization of the toric code and beyond.** Padmanabhan, P., Ibieta-Jimenez, J. P., Ferreira, M. J. B., and Teotonio-Sobrinho, P. (2016). *Annals of Physics*, 372, 238-259. <https://arxiv.org/abs/1408.2501>
- **A Recipe for Constructing Frustration-Free Hamiltonians with Gauge and Matter Fields in One and Two Dimensions;** Ferreira, M. J. B., Ibieta-Jimenez, J. P., Padmanabhan P. and Teotonio-Sobrinho P.; *Journal of Physics A: Mathematical and Theoretical* 48.48 (2015): 485206, <https://arxiv.org/abs/1503.07601>
- **Topological Order from a Cohomological and Higher Gauge Theory perspective;** de Almeida, R. C., Ibieta-Jimenez, J. P., Espiro, J. L. and Teotonio-Sobrinho, P. (2017). *arXiv preprint arXiv:1711.04186*.

Technical and Personal skills

- **Computer / Informatics:**
 - Proficiency with programming languages, including Python, R, C, C++, Mathematica and Matlab as well as with TeX and LaTeX text processors;
 - Python libraries: Pandas, Numpy, Matplotlib, seaborn, Tensorflow, Keras, scikit-learn, XGBoost, NLTK, spacy, scikit-learn, OpenCV.
 - Web: HTML, CSS, Flask, Django
 - Databases: SQL, MySQL.
 - Proficiency in vector graphic design for illustrating academic texts.
- **Personal / Communication Skills:**
 - Proven skills in innovative problem solving, theoretical research and abstract thinking;
 - Ability to integrate and lead groups in different contexts and tasks;
 - Professional communication skills including fluency in English, Spanish and Portuguese;

Languages

- **Spanish:** Native Speaker;

- **English:** Fluent;
- **Portuguese:** Fluent;
- **French:** Basic.

Events

- **2018 CODATA-RDA School of Research Data Science** **São Paulo**
Instituto de Física Teórica (IFT)- UNESP, Brasil *Dec 2018*
- **Introduction to quantum computation and simulability** **São Paulo**
Instituto de Física Teórica (IFT)- UNESP, Brasil *Oct 2018*
- **From Quantum Information to Many-Body Physics and Beyond** **São Paulo**
Instituto de Física Teórica (IFT)- UNESP, Brasil *Aug 2018*
- **School on Mathematical Physics: Topological order and beyond** **Bogotá**
Universidad de los Andes, Colômbia *May 2018*
- **School on Nonlinear Time Series Analysis and Complex Networks** **São Paulo**
Instituto de Física Teórica (IFT)- UNESP, Brasil *Feb 2018 - Mar 2018*
- **Minicourse on Machine Learning for Many-Body Physics** **São Paulo**
Instituto de Física Teórica (IFT)- UNESP, Brasil *Sep 2017*
- **School on AdS/CMT Correspondence** **São Paulo**
Instituto de Física Teórica (IFT)- UNESP, Brasil *Apr 2017*
- **Group Theory and Knots** **Natal**
International Institute of Physics (IIP) - UFRN, Brasil *Nov 2014*
- **Quantum Gravity in the Southern Cone V** **Buenos Aires**
Universidad de Buenos Aires (UBA), Argentina *Jul 2010*