

Johann Sebastian Quenta Raygada

Bachelor of Science in Physics

✉ j.quentar@pucp.edu.pe

Profile

B.Sc. in Physics from the Pontificia Universidad Católica del Perú. Currently an M.Sc. student in Mathematics in the same university. Interested in theoretical and mathematical physics, especially in the area of fundamental high-energy physics and its interaction with geometry and topology.

Education

Pontificia Universidad Católica del Perú (PUCP)

M.Sc. in Mathematics

2021 - present

Pontificia Universidad Católica del Perú

B.Sc. in Physics

2016 - 2020

Research Experience

Analysis of chemical front stability in exothermic reactions

PUCP Nonlinear Dynamics Research Group

2019 - present

- Theoretical modeling of chemical front dynamics due to fluid convection in autocatalytic reactions.
- Writing code in FORTRAN to solve the model's differential equations numerically.
- Studying the conditions for front stability by varying the physical parameters of the system.

Quantum state tomography and interferometry

PUCP Quantum Optics Research Group

Summer 2020

- Characterizing quantum states of light by experimental methods such as quantum state tomography.
- Measuring visibility and distinguishability in a Mach-Zender interferometer arrangement.
- Redacting theoretical reviews and laboratory guides for newcomers.

Presentations

Analyzing the stability of chemical fronts in exothermic reactions

(Certified)

*Extraordinary Colloquium for the Undergraduate Physics Symposium
at PUCP (CESPreFi-PUCP)*

December 2020

Modeling convection in fluids due to chemical reactions

(Certified)

First Edition of CESPreFi-PUCP

September 2019

Skills

Programming / Software Packages

- FORTRAN, Python - *Intermediate to Advanced*
- Mathematica, \LaTeX - *Intermediate*
- C, C++, VBA, Git, Bash - *Basic*

Languages

- English - *Advanced*
- Japanese - *Intermediate (Certified: Japanese Language Proficiency Test N3)*
- Spanish - *Native*

Awards and Distinctions

Award for Outstanding Academic Performance (Certified)
PUCP General Science Studies Faculty October 2017

- Given for obtaining the highest score on the 2017-1 *Statistics* course.

Teaching Experience

Teaching Assistant for *Electromagnetic Field Theory*
PUCP Science and Engineering Faculty 2021 - present

Teaching Assistant for *Physics Fundamentals, Physics 1* and *Calculus 1*
PUCP General Science Studies Faculty 2019 - present

Workshop: *Introduction to Python for Scientists*
Association of Physics Students ASDF PUCP February 2020

Extracurricular Activities

XV School for Fundamental Physics (Certified)
Universidad Autónoma de Querétaro - México August 2020

Physics Unlimited Summer Camp - Networking Sessions
Physics Unlimited August 2020

Course on Quantum Field Theory (Certified)
Universidad Nacional Mayor de San Marcos (UNMSM)
Theoretical Physics Group February 2020

First PUCP Physics Winter School
Association of Physics Students ASDF PUCP July - August 2019

Introduction to Theoretical Physics Summer School
UNMSM Theoretical Physics Group February - March 2018

First *Clubes de Ciencia* workshop held on Lima, Perú - CD002 |
Origin of the universe and its elementary particles (Certified)
Clubes de Ciencia Perú July 2017

Outreach and University/Community Service

Active member of the Association of Physics Students ASDF PUCP
PUCP Physics Faculty 2020 - present

Member of the organization team for the Weekly Physics Colloquia at PUCP
PUCP Physics Faculty 2019-2020

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| <i>Science Party</i> - Vocational guidance workshop held at <i>the Teresa Gonzáles de Fanning School</i> <i>IEEE Women in Engineering PUCP (WIE PUCP)</i> | (Certified) <i>July 2019</i> |
| <i>Build your own rocket!</i> - Workshop held at the <i>San Miguel Arcángel Children's Home</i> <i>IEEE WIE PUCP</i> | (Certified) <i>May 2019</i> |
| Career Full-Day held at the <i>Colegio Mayor Secundario Presidente del Perú</i> Secondary School <i>IEEE WIE PUCP</i> | (Certified) <i>October 2018</i> |

Miscellaneous

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| Education Program for the Next Generation of Nikkei (for High School Students) <i>Japan International Cooperation Agency (JICA)</i> | (Certified) <i>January - February 2017</i> |
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- One month program in Yokohama, Japan for South American Nikkei high school students to explore their Japanese roots through different integrating activities while promoting cultural exchange.