

# Héctor Ramírez

## Data Scientist | PhD in Physics

**Brief résumé:** I recently earned my PhD in Physics where I specialized in experimental data analysis and mathematical modeling. I led several short and long-term projects in collaboration with colleagues from several institutions in different countries. The results of which I have presented as a speaker in multiple international seminars and conferences. Moreover, I have extended my data analysis techniques with numerous courses on Data Engineering, Data Science and Machine Learning. To mention some skills: SQL, Spark, Cloud Computing with AWS, Tableau, Supervised and Unsupervised Learning with scikit-learn, Deep Learning with Keras, TensorFlow and PyTorch, Natural Language Processing, etc.

|                       |   |
|-----------------------|---|
| Contact               | (+34)693012381 ☎ — Mail ✉ — LinkedIn  — GitHub  — Webpage  |
| Residence             | Valencia, Spain (with Spanish work permit).   |
| Birth and Nationality | May 20th, 1990 — Mexican.   |

## Education

|   |   |
|---|---|
| <b>PhD in Physics</b><br>2015-2019      | <b>University of Valencia</b> , Spain.<br>Dissertation: <i>'Noncanonical Approaches to Inflation'</i>     |
| <b>MA in Advanced Physics</b> 2013-2014 | <b>University of Valencia</b> , Spain.<br>Dissertation: <i>'The Hu-Sawicki Model of Modified Gravity'</i> |
| <b>BA in Physics</b><br>2008-2013       | <b>University of Veracruz</b> , Mexico.<br>Dissertation: <i>'Quantum Chaos in the Dicke Model'</i>        |
| 2012                                    | <b>University of Valencia</b> (Academic exchange semester), Spain.  |

### Additional training

I have been continuously learning **Data Engineering**, **Data Science** and **Machine Learning** techniques following the course plan by **DataCamp**, where I have completed more than 50 courses.

## Skills

### Computer

|                  |  |
|------------------|--|
| Languages        | Python, SQL, Scala, Mathematica.   |
| Data Engineering | Spark, Amazon Web Services (S3, SNS).  |
| Data Analysis    | Spreadsheets, Tableau, NumPy, pandas.  |
| Machine Learning | scikit-learn, PySpark, Keras, TensorFlow, PyTorch, XGBoost, NLTK, AWS (Rekognition). |
| Visualization    | Matplotlib, seaborn, bokeh.  |
| Web              | HTML, CSS.   |
| Other            | Git, Jupyter Notebook, Docker.   |

### Languages

**Spanish:** Native; **English:** Fluent; **French:** B2 level. I have also taken **German** and **Italian** courses.

### Sports

Highly active in organizing, managing and participating in sport teams, mainly on **football soccer**—I have joined and organized football teams in every place I have done a research stay.

## Awards and Fellowships

|                 |   |
|-----------------|---|
| 2015 - 2019     | <b>FPI Research fellow</b> by the <i>Ministry of Economy, Industry and Competitiveness</i> (MINECO), Spanish Government.                                      |
| Jul - Sep, 2014 | <b>Research scholarship</b> granted by the University of Valencia   |
| Jan - Jul, 2012 | <b>Grant for an abroad academic exchange semester</b> by the University of Veracruz<br>Carried out at the Faculty of Physics, <i>University of Valencia</i> . |
| 2009 - 2011     | <b>Faculty award (x2)</b> due to academic excellence<br><i>University of Veracruz</i>   |

## Professional Experience

### International projects

I have done research placements in the UK, Japan, Italy and in the Fermilab National Laboratory (USA), where I led short- and long-term collaborative projects and presented results as international speaker.

|                 |  |
|-----------------|--|
| Apr - Jun, 2018 | <b>Institute of Cosmology and Gravitation (ICG), University of Portsmouth</b><br>Portsmouth, UK.                                       |
| Jan - Mar, 2018 | <b>Kavli Institute for the Physics and Mathematics of the Universe (IPMU),<br/>The University of Tokyo</b>                             |
| May - Aug, 2017 | <b>Fermi National Accelerator Laboratory (Fermilab) &amp;<br/>Kavli Institute for Cosmological Physics – The University of Chicago</b> |
| Apr - Jun, 2015 | <b>Abdus Salam International Center for Theoretical Physics (ICTP)</b><br>Trieste, Italy.  |

### Teaching

I have taught undergraduate courses managed by the Department of Theoretical Physics at the University of Valencia during the last four academic years—about 45 hours in the classroom (groups of around 15 students) + class preparation, per academic year.

|                                 |  |
|---------------------------------|--|
| <b>Classical<br/>Mechanics</b>  | <b>Teaching Assistant</b> (2017-2019): Resolution of problems, examinations, evaluation of teaching contents and elaboration of teaching material. |
| <b>Introductory<br/>Physics</b> | <b>Teaching Assistant</b> (2015-2018): Resolution of problems, occasional lectures, examinations and grading.                                      |

### Journal referee

I have refereed scientific articles for the journals **Physical Review Letters** and **Physical Review D**, both from the American Physical Society (USA).

## Publications

A total of **8** research articles published either in **Physical Review D** (Astronomy & Astrophysics – Scie.; Physics, Particles & Fields — Scie.) [Impact factor: 4.568] (x5); **Journal of Cosmology and Astroparticle Physics** (Astronomy & Astrophysics – Scie.; Physics, Particles & Fields – Scie.) [Impact factor: 4.734] (x2); **Physics of the Dark Universe** (Astronomy & Astrophysics – Scie.) [Impact factor: 5.425] (x1).

My total list of publications can be found in my Inspire page:

<http://inspirehep.net/author/profile/H.Ramirez.1>

## Talks

|                  |   |
|------------------|---|
| Conference talks | <b>5</b> talks in Valencia, Paris, Teruel (Spain), Kyoto (Japan) and Portsmouth (UK).   |
| Seminar talks    | <b>13</b> talks in Valencia (x2), Paris (x2), Tokyo, London, Portsmouth (UK), New York, Chicago, UC Berkeley (USA), Schladming (Austria) and Veracruz (Mexico). |

Details about my talks can be found in <https://hectoramirez.github.io/Files/CV/Talks.pdf>.

## References

**Dr. Olga Mena Requejo**

Consejo Superior de Investigaciones Científicas (CSIC/IFIC)



**Prof. Nick E. Mavromatos**

King's College London



**Prof. David Wands**

University of Portsmouth



**Prof. Shinji Tsujikawa**

Tokyo University of Science

