

# ALEJANDRO JOSÉ URÍA ÁLVAREZ

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## EDUCATION

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<b>University de Oviedo</b> Double Bachelor's Degree in Physics and Mathematics. Average mark: 9.192/10	<i>September 2012 - July 2017</i>
<b>Università degli Studi di Trieste</b> Erasmus+ Programme.	<i>September 2014 - July 2015</i>
<b>Universidad Autónoma de Madrid</b> Master's Degree in Condensed Matter Physics and Biophysics. PhD in Theoretical Condensed Matter Physics	<i>September 2017 - July 2018</i> <i>September 2019 - Present</i>

## POSITIONS

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<b>Universidad Nacional de Estudios a Distancia</b> Teaching Assistant.	<i>Septiembre 2022 - Enero 2023</i>
<b>Universidad Autónoma de Madrid</b> Teaching Assistant.	<i>Septiembre 2021 - Enero 2023</i>
<b>ArcelorMittal Global R&amp;D Asturias</b> R&D Engineer in Additive Manufacturing	<i>March 2018 - September 2019</i>

## CONTRIBUTIONS

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### Publications

- G. Cistaro, M. Malakhov, J.J. Esteve-Paredes, **A.J. Uría-Álvarez**, Rui E. F. Silva, F. Martín, J.J. Palacios, and A. Picón (2022). *A theoretical approach for electron dynamics and ultrafast spectroscopy*. arXiv:2207.00249 (2022)
- **A.J. Uría-Álvarez**, D. Molpeceres-Mingo, J.J. Palacios. *Deep learning for disordered topological insulators through their entanglement spectrum*. Phys. Rev. B **105**, 155128 (2022)

### Oral presentations

- Bienal RSEF 2022 *Murcia, 2022*  
*Deep learning for disordered topological insulators through their entanglement spectrum*
- APS March Meeting 2022 *Chicago, 2022*  
*Edge current generation in 2d topological insulators through exciton dissociation*
- APS March Meeting 2022 *Chicago, 2022*  
*Deep learning for disordered topological insulators through entanglement spectrum*
- INC Young Researchers Meeting 2021 *Madrid, 2021*  
*Deep learning for disordered topological insulators through entanglement spectrum*
- CMD2020GEFES *Madrid, 2020*  
*Excitons in two-dimensional topological insulators: Study of Bi(111) bilayers*

### Posters

- DCMS Materials 4.0 *Dresden, 2019*  
*Excitons in two-dimensional topological insulators: Study of Bi(111) bilayers*

### Open-source software

- Tight-binder (Python library)

<https://github.com/alejandrojuria/tight-binder>  
- Topological-excitons (C++ software)  
<https://github.com/alejandrojuria/topological-excitons>

## COURSES AND ACTIVITIES

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- Summer School in Quantum Computing: Theory and Implementations *September 2022*
- Machine Learning Summer School (DCMS Materials 4.0) *July 2019*
- Participation in **X-Ray and Neutron Science International Student Summer Programme ESRF/ILL**, in the project called "*Can SCBO be treated as a 2D quantum magnet?*" *July 2014*
- Deep Learning Specialization (MOOC by Coursera) *2020*

## AWARDS

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- **Award for the best academic record of the Double Bachelor's Degree in Mathematics and Physics.** *November 2017*
- First position in the Chemistry Olympiad of Asturias.
- Silver medal in the National Chemistry Olympiad. *April 2012*
- Second position in the Physics Olympiad of Asturias.
- Honor mention in the National Physics Olympiad. *April 2012*
- Ended high school with Honors.

## SKILLS

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### **Programming languages and technologies:**

Experienced with: Python, C, C++, Octave, L<sup>A</sup>T<sub>E</sub>X, Java

Acquainted with: JavaScript, ReactJS, NodeJS, Blender

**Languages:** Native Spanish, C1 English, B1 Italian