ALEJANDRO JOSÉ URÍA ÁLVAREZ

11/18/1994 ⋄ Spain, Madrid

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EDUCATION

University de Oviedo *September 2012 - July 2017*
Double Bachelor's Degree in Physics and Mathematics.
Average mark: 9.192/10

Università degli Studi di Trieste *September 2014 - July 2015*
Erasmus+ Programme.

Universidad Autónoma de Madrid
Master's Degree in Condensed Matter Physics and Biophysics. *September 2017 - July 2018*
PhD in Theoretical Condensed Matter Physics *September 2019 - Present*

POSITIONS

Universidad Autónoma de Madrid
Predoctoral Researcher. *September 2019 - Present*
Teaching Assistant. *September 2021 - January 2023*

Institut Néel
Visiting Researcher. *April - July 2023*

ArcelorMittal Global R&D Asturias
R&D Engineer in Additive Manufacturing. *March 2018 - September 2019*

CONTRIBUTIONS

Publications
- **A.J. Uría-Álvarez**, J.J. Palacios, *tightbinder: A Python package for semi-empirical tight-binding models of crystalline and disordered solids.* J. Open Source Softw., 9(94), 5810 (2024)
- **A.J. Uría-Álvarez**, J.J. Palacios, *Topologically protected photovoltaics in Bi nanoribbons.* arXiv 2401.07970 (2024)
- M.A. García-Blázquez, J.J. Esteve-Paredes, **A.J. Uría-Álvarez**, J.J. Palacios, *Shift current with Gaussian basis sets & general prescription for maximally-symmetric summations in the irreducible Brillouin zone.* J. Chem. Theory Comput. 2023, 19, 24, 9416–9434
- **A.J. Uría-Álvarez**, J.J. Esteve-Paredes, M.A. García-Blázquez, J.J. Palacios, *Efficient computation of optical excitations in two-dimensional materials with the Xatu code.* Comput. Phys. Comms. **295**, 109001 (2024).
- 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.* J. Chem. Theory Comput. 2023, 19, 1, 333–348 (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
- APS March Meeting 2023 *Vegas, 2023*
Amorphization-induced topological transition in 2d BiSb alloys.
- 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
- GEFES 2023   *Salamanca, 2023*
Amorphization-induced topological transition in 2d BiSb alloys.
- DCMS Materials 4.0   *Dresden, 2019*
Excitons in two-dimensional topological insulators: Study of Bi(111) bilayers

Open-source software
- Tightbinder (Python library)
`https://github.com/alejandrojuria/tightbinder`
- Xatu (C++ software)
`https://github.com/alejandrojuria/xatu`

COURSES AND ACTIVITIES

· 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

· **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

Programming languages and technologies:
Experienced with: Python, C, C++, Octave, LaTeX, Java
Acquainted with: JavaScript, React, NodeJS

Languages: Native Spanish, C1 English, B1 Italian