Curriculum Vitae

Jorge Alda Gallo
Ph.D. in Theoretical Physics

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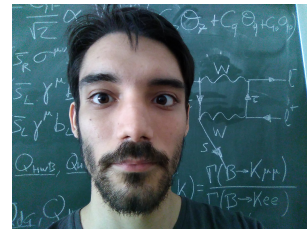📱 +34 676 70 35 11
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🌐 https://jorge-alda.github.io
⭘ Jorge-Alda
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☆ Research interests

- New physics beyond the Standard Model.

- Flavour Physics.

- B-meson anomalies.

- Effective Field Theories.

- Axions and Axion-like particles.

- Machine Learning applied to Physics.

🎓 Education

B.Sc. in Physics, Universidad de Zaragoza   2011-2015

Average grade: 9.20/10. 13 Honours.
B.Ss. Project: *"Cálculo numérico en teoría cuántica de campos de la materia condensada"*.
Under the supervision of David Zueco Láinez. Qualification: 9.5/10.

M.Sc. in Theoretical Physics, Universidad Complutense de Madrid 2015-2016

Average grade: 9.34/10.
M.Sc. Project: *New Applications of the Coleman-Weinberg Model.* Under the supervision of J. A. Ruiz Cembranos. Qualification: 9.0/10.

Ph.D. in Physics, Universidad de Zaragoza   2016-2022

Under the supervision of Siannah Peñaranda Rivas.
Dissertation title: *A Glance into Flavour Physics with Effective Field Theories and Machine Learning.*
Defense date: 27th April 2022.
Qualification: *Cum Laude.*

Ph.D. School   2018

Taller de Altas Energías. Benasque (Huesca, Spain).

Ph.D. School   2022

WE-Heraeus Summer School SMEFT'22: Theory and Phenomenology of the Standard Model EFT. Siegen (Germany).

Postdoctoral Positions

Universidad de Zaragoza   April 2022 - February 2023

Università degli Studi di Padova   October 2023 - September 2025

Grants

Grant JAE-Intro CSIC   2014

Project *"Caos semiclásico en sistemas de bosones con interacción"*, supervised by David Zueco Láinez.
CSIC-ICMA (Spanish National Research Council and Instituto de Ciencia de Materiales de Aragón).

PreDoc Grant, Diputación General de Aragón   2017-2022

Programa Ibercaja-CAI de Estancias de Investigación   2021

Grant No. CB 5/21.

Postdoctoral Scholarship for Extension of Studies Abroad for Lite and Material Sciences, Ramón Areces Foundation   2023-2025

Memberships

CAPA   2019-present

Centro de Astropartículas y Física de Altas Energías. Zaragoza, Spain.
`capa.unizar.es`

INFN   2023-present

Istituto Nazionale di Fisica Nucleare, Sezione di Padova.

Visiting Scholar Appointments

Università degli Studi di Padova/INFN   Summer 2021

Università degli Studi di Padova/INFN   Summer 2023

University of California, San Diego   September 2024

Scientific Production

J. Alda, J. Guasch and S. Peñaranda: *Some results on Lepton Flavour Universality Violation*
Eur.Phys. J. C, 79 7 (2019) 588
doi:10.1140/epjc/s10052-019-7092-x
arXiv:1805.03636 [hep-ph]

J. Alda, J. Guasch and S. Peñaranda: *Anomalies in B decays: A phenomenological approach*
Eur.Phys. J. Plus 137 (2022) 217
doi:10.1140/epjp/s13360-022-02405-3
arXiv:2012.14799 [hep-ph]

J. Alda, J. Guasch and S. Peñaranda: *Anomalies in B decays: Present status and future collider prospects*
arXiv:2105.05095 [hep-ph]
SLAC eConf C21-03-15.1

J. Alda, J. Guasch and S. Peñaranda: *Using Machine Learning techniques in phenomenological studies in flavour physics*
J. High Energ. Phys. 2022, 115 (2022)

doi:10.1007/JHEP07(2022)115
arXiv:2109.07405 [he-ph]

J. Alda, J. Guasch and S. Peñaranda: *Exploring B-physics anomalies at colliders*
arXiv:2110.12240 [hep-ph]
PoS(EPS-HEP2021)494

J. Alda, A. W. M Guerrera, S. Peñaranda and S. Rigolin: *Leptonic Meson Decays into Invisible ALP*
Nucl.Phys.B 979 (2022) 115791
doi:10.1016/j.nuclphysb.2022.115791
arXiv:2111.02536 [hep-ph]

J. Alda, A. Mir and S. Peñaranda: Phenomenological analysis of $b \to c \ell \nu$ **and** $b \to s \bar{\nu} \nu$ **processes using Machine Learning**
In preparation

J. Alda, G. Levati, P. Paradisi, S. Rigolin and N. Selimović: *Leptophilic and Tauphilic Axion-Like Particles*
In preparation

J. Alda, M. Fuentes, L. Merlo, X. Ponce and S. Rigolin: *Axion-Like Particles in* B *Meson Anomalies*
In preparation

⚎ Talks and conferences

2nd Red LHC Workshop. Madrid, Spain. 9-11 May 2018
Talk "Some Results on Lepton Flavour Violation".

Taller de Altas Energías. Benasque (Huesca, Spain) 2-15 September 2018
Talk "Some Results on Lepton Flavour Violation".

X CPAN Days. Salamanca, Spain. 29-31 October 2018
Talk "Complex Wilson coefficients in the analysis of B-anomalies".

I Jornadas de Jóvenes Investigadores CAPA. Zaragoza, Spain. 7 May 2019
Talk "Effective Theories for B-meson anomalies".

I Jornadas del Programa de Doctorado de Física. Zaragoza, Spain. 20 June 2019
Talk "Effective Theories for B-meson anomalies".

XXXVII Bienal de Física de la Real Sociedad Española de Física. Zaragoza, Spain. 15-19 de July 2019
Talk "Some Results on Lepton Flavour Universality Violation".

International Workshop on Future Linear Colliders - LCWS2021. Online. 15-18 March 2021
Talk "Anomalies in B mesons decays: Present status and future collider prospects".

European Physical Society Conference on High Energy Physics 2021 (EPS-HEP2021). Online. 26-30 July 2021
Poster "Exploring B-physics anomalies at colliders ".

Seminar, Department of Theoretical Physics. University of Zaragoza, Spain. 18 November 2021
Talk "Leptonic Mesons Decays into invisible ALP".

II Jornadas del Programa de Doctorado de Física. University of Zaragoza, Spain. 3 December 2021
Talk "Leptonic Mesons Decays into invisible ALP".

Seminar, Department of Theoretical Physics. University of Zaragoza, Spain. 20 January 2022
Talk "Using Machine Learning techniques in phenomenological studies in flavour physics".

Seminar, Institute of Theoretical Physics (IFT). Autonomous University of Madrid, Spain. 27 January 2022
Talk "Using Machine Learning techniques in phenomenological studies in flavour physics".

XIII CPAN Days. Huelva, Spain. 21-23 March 2022
Talk "Using Machine Learning techniques in phenomenological studies in flavour physics".

5th Inter-experiment Machine Learning Workshop. CERN, Switzerland. 8-13 May 2022
Talk "Using Machine Learning techniques in phenomenological studies in flavour physics".

Saturnalia Workshop. University de Zaragoza/CAPA, Spain. 21 December 2022
Talk "Using Machine Learning techniques in phenomenological studies in flavour physics".

Saturnalia Workshop. University de Zaragoza/CAPA, Spain. 20 December 2023
Talk "Light New Physics coupling to τ".

⧉ Contributions to public repositories

flavio

1 pull request merged: `https://github.com/flav-io/flavio/pull/160`

smelli

1 pull request: `https://github.com/smelli/smelli/pull/45`

🖼 Teaching

September 2019

Ph.D. School "Taller de Altas Energías de Benasque" (Huesca, Spain).
Associate teacher.

2019-2020

Differential Equations
Problem-solving sessions, 38 teaching hours.
Second year course, Bachelor Degree in Physics, Universidad de Zaragoza.

General Physics
Laboratory sessions, 10 teaching hours.
First year course, Bachelor Degree in Mathematics, Universidad de Zaragoza.

2020-2021

Differential Equations
Problem-solving sessions, 38 teaching hours.
Second year course, Bachelor Degree in Physics, Universidad de Zaragoza.

General Physics
Laboratory sessions, 10 teaching hours.
First year course, Bachelor Degree in Mathematics, Universidad de Zaragoza.

2021-2022

Differential Equations
Problem-solving sessions, 38 teaching hours.
Second year course, Bachelor Degree in Physics, Universidad de Zaragoza.

Co-direction of B.Sc. Project: Alejandro Mir
10 teaching hours. Fourth year course, Bachelor Degree in Physics, Universidad de Zaragoza.

General Physics
Laboratory sessions, 10 teaching hours.
First year course, Bachelor Degree in Mathematics, Universidad de Zaragoza.

2022-23

Co-direction of M.Sc. Project: Alejandro Mir
10 teaching hours. Master Degree in Physics, Universidad de Zaragoza.

Co-direction of B.Sc. Project: Francisco J. Gómez-Fauro
10 teaching hours. Fourth year course, Bachelor Degree in Physics, Universidad de Zaragoza.

2024-present

Co-direction of Ph.D. Thesis: Alejandro Mir
Co-direction of Ph.D. Thesis in Physics, Universidad de Zaragoza.

⧏ Scientific Dissemination

Dark Matter Day. University of Zaragoza, Spain. 31 October 2022

Organizing Committee of the 2022 Saturnalia Workshop. University of Zaragoza/CAPA, Spain. 16-22 December 2022
`https://indico.capa.unizar.es/event/32/`

💬 Languages

Spanish	■■■■■
English	■■■■■
Italian	■■■□□
German	■■■□□
French	■■□□□

🖥 Programming languages

TeX/LaTeX	■■■■■
Python	■■■■■
C/C++	■■■□□
Mathematica	■■■□□
Docker	■■□□□
Rust	■□□□□

🏆 Awards

XXII Spanish Physics Olympiad   2011

Silver Medal (Rank 15).
Second position in the regional Aragonese phase.

20th International Mathematics Competition   2013

Bronze Medal (rank 177).

About this CV

This CV was last updated in February 28, 2024.
You can find the latest version at
`https://github.com/Jorge-Alda/Jorge-Alda/`
`releases/latest/download/CV.pdf`