

Maykoll A. Reyes Hung

Nationality: Spanish | **Gender:** Male | **Website:** <https://orcid.org/0000-0003-1357-4815>

● EDUCATION & TRAINING

23/06/2023 - ZARAGOZA, SPAIN

PHD IN PHYSICS- UNIVERSITY OF ZARAGOZA

URL: <https://zaguan.unizar.es/record/129540>

Field(s) of study: Physics | **Final grade:** Cum Laude | **Level in EQF:** 8 | **Thesis:** Exploration of possible signals beyond special relativity using high-energy astroparticle physics

15/07/2019 - ZARAGOZA, SPAIN

MASTER'S DEGREE IN PHYSICS AND PHYSICAL TECHNOLOGIES- UNIVERSITY OF ZARAGOZA

URL: <https://zaguan.unizar.es/record/86664>

Field(s) of study: Physics | **Final grade:** "Matrícula de Honor" | **Level in EQF:** 7 | **Thesis:** Observaciones de neutrinos de muy alta energía como ventana a nueva física

15/07/2019 - CERGY, FRANCE

MASTER'S DEGREE IN THEORETICAL PHYSICS AND APPLICATIONS- UNIVERSITY OF CERGY-PONTOISE

Degree completed as part of a Dual Master's Degree program with the University of Zaragoza

Field(s) of study: Physics | **Level in EQF:** 7

23/08/2018 - ZARAGOZA, SPAIN

BACHELOR'S DEGREE IN PHYSICS- UNIVERSITY OF ZARAGOZA

URL: <https://zaguan.unizar.es/record/77750>

Field(s) of study: Physics | **Final grade:** "Matrícula de Honor" | **Level in EQF:** 6 | **Thesis:** Indicaciones de nueva física en el espectro de neutrinos cósmicos

● WORK EXPERIENCE

09/09/2025 - CURRENT - ZARAGOZA, SPAIN

UNIVERSITY RESEARCH ASSOCIATE UNIVERSITY OF ZARAGOZA

Supervision of Bachelor's Theses:

Student: C. Santa Eugenia

Supervisors: J.M. Carmona, M.A. Reyes

Year: 2024/2025

URL: <https://zaguan.unizar.es/record/167509>

Student: R. García

Supervisors: J.M. Carmona, M.A. Reyes

Year: 2024/2025

URL: <https://zaguan.unizar.es/record/166420>

24/06/2024 - 09/2024 - ZARAGOZA, SPAIN

01/09/2020 - 23/06/2024 - ZARAGOZA, SPAIN

UNIVERSITY RESEARCH ASSOCIATE UNIVERSITY OF ZARAGOZA

Teaching Experience:

Subject: Física de astropartículas I: rayos gamma, neutrinos y rayos cósmicos

Program: Máster Universitario en Física del Universo: Cosmología, Astrofísica, Partículas y Astropartículas

Year: 2021/2022 to 2023/2024

Subject: Teoría y fenomenología del Modelo Estándar de física de partículas

Program: Máster Universitario en Física del Universo: Cosmología, Astrofísica, Partículas y Astropartículas

Year: 2021/2022

Subject: Cálculo integral y geometría

Program: Grado en Física

Year: 2020/2021 to 2022/2023

Subject: Ecuaciones diferenciales

Program: Grado en Física

Year: 2022/2023

Supervision of Master's Theses:

Student: I. Fernández

Supervisors: J.M. Carmona, J.L. Cortés, M.A. Reyes

Year: 2022/2023

URL: <https://zaguan.unizar.es/record/124511>

Supervision of Bachelor's Theses:

Student: G. Pascua

Supervisors: J.M. Carmona, M.A. Reyes

Year: 2023/2024

URL: <https://zaguan.unizar.es/record/149484>

Student: D. Morales

Supervisors: J.L. Cortés, M.A. Reyes

Year: 2023/2024

URL: <https://zaguan.unizar.es/record/149369>

● **PUBLICATIONS**

[Superluminal constraints from ultra-high-energy neutrino events](#) 2026

J.M. Carmona, J.L. Cortés, M.A. Reyes JCAP 03 (2026) 023.

[Photon absorption in a doubly special relativity model with undeformed free propagation and total momentum conservation](#)

J.M. Carmona, J.L. Cortés, F. Rescic, M.A. Reyes, T. Terzić JCAP 07 (2025) 066.

[White paper and roadmap for quantum gravity phenomenology in the multi-messenger era](#) 2025

R. Alves Batista, G. Amelino-Camelia, D. Boncioli, J.M. Carmona, A. di Matteo et al. Class.Quant.Grav. 42 (2025) 3, 032001.

[Approaches to photon absorption in a Lorentz invariance violation scenario](#) 2024

J.M. Carmona, J.L. Cortés, F. Rescic, M.A. Reyes, T. Terzić, F.I. Vrbancić Phys.Rev.D 110 (2024) 6, 063035.

Consistency of Lorentz-invariance violation neutrino scenarios in time delay analyses 2024

J.M. Carmona, J.L. Cortés, M.A. Reyes Class.Quant.Grav. 41 (2024) 7, 075012.

Testing Lorentz invariance violation using cosmogenic neutrinos 2023

Maykoll A. Reyes, Denise Boncioli, José Manuel Carmona, José Luis Cortés PoS ICRC2023 (2023) 1026.

A New Perspective on Doubly Special Relativity 2023

J.M. Carmona, J.L. Cortés, J.J. Relancio, M.A. Reyes Universe 9 (2023) 3, 150.

Decay of superluminal neutrinos in the collinear approximation 2023

J.M. Carmona, J.L. Cortés, J.J. Relancio, M.A. Reyes Phys.Rev.D 107 (2023) 4, 4.

Physics of the universe transparency in a deformed kinematics 2022

J.M. Carmona, J.L. Cortés, L. Pereira, J.J. Relancio, M.A. Reyes PoS CORFU2021 (2022) 323.

Effects of new physics in neutrino propagation 2022

J.M. Carmona, J.L. Cortés, J.J. Relancio, M.A. Reyes PoS CORFU2021 (2022) 329.

Time delays, choice of energy-momentum variables, and relative locality in doubly special relativity 2022

J.M. Carmona, J.L. Cortés, J.J. Relancio, M.A. Reyes Phys.Rev.D 106 (2022) 6, 6.

Cosmic Neutrinos as a Window to Departures from Special Relativity 2022

J.M. Carmona, J.L. Cortés, J.J. Relancio, M.A. Reyes Symmetry 14 (2022) 7, 1326.

Quantum gravity phenomenology at the dawn of the multi-messenger era—A review 2022

A. Addazi, J. Alvarez-Muniz, R. Alves Batista, G. Amelino-Camelia, V. Antonelli et al. Prog.Part.Nucl.Phys. 125 (2022) 103948.

Modification of the mean free path of very high-energy photons due to a relativistic deformed kinematics

J.M. Carmona, J.L. Cortés, J.J. Relancio, M.A. Reyes, A. Vincueria Eur.Phys.J.Plus 137 (2022) 7, 768.

Lorentz Violation Footprints in the Spectrum of High-Energy Cosmic Neutrinos—Deformation of the Spectrum of Superluminal Neutrinos from Electron-Positron Pair Production in Vacuum 2019

J.M. Carmona, J.L. Cortés, J.J. Relancio, M.A. Reyes Symmetry 11 (2019) 11, 1419.

● **CONFERENCES & SEMINARS**

07/07/2025 Paris, France

First Annual Conference of the COST Action CA23130 Type of participation: Oral presentation.

Speaker: M.A. Reyes

Authors: J.M. Carmona, J.L. Cortés, F. Rescic, M.A. Reyes, T. Terzić

Title of the work: Disentangling Lorentz symmetry breaking and deformation in photon absorption

Type of participation: Oral presentation.

Speaker: J.M. Carmona

Authors: J.M. Carmona, J.L. Cortés, M.A. Reyes

Title of the work: Advancing superluminal neutrino constraints with UHE events

15/07/2024 Madrid, Spain

Fifth annual conference on quantum gravity phenomenology in the multi-messenger approach Type of participation: Oral presentation.

Speaker: M.A. Reyes

Authors: J.M. Carmona, J.L. Cortés, F. Rescic, M.A. Reyes, T. Terzić

Title of the work: Photon absorption in a DSR scenario

Type of participation: Oral presentation.

Speaker: J.M. Carmona

Authors: J.M. Carmona, J.L. Cortés, M.A. Reyes

Title of the work: A new perspective on Doubly Special Relativity

26/07/2023 Nagoya, Japan

38th International Cosmic Ray Conference **Type of participation:** Online poster

Speaker: M.A. Reyes

Authors: D. Boncioli, J.M. Carmona, J.L. Cortés, M.A. Reyes

Title of the work: Testing Lorentz invariance violation using cosmogenic neutrinos

10/07/2023 Rijeka, Croatia

Fourth Annual Conference COST Action CA18108 **Type of participation:** Oral presentation

Speaker: M.A. Reyes

Authors: D. Boncioli, J.M. Carmona, J.L. Cortés, M.A. Reyes

Title of the work: Testing Lorentz invariance violation using cosmogenic neutrinos

01/11/2022 Belgrade, Serbia

Workshop on theoretical and experimental advances in quantum gravity **Type of participation:** Oral presentation

Speaker: M.A. Reyes

Authors: J.M. Carmona, J.L. Cortés, M.A. Reyes, J.J. Relancio

Title of the work: Collinear approximation: Decay of superluminal neutrinos in a LIV scenario

13/07/2022 Naples, Italy

Third Annual Conference COST Action CA18108 **Type of participation:** Oral presentation

Speaker: M.A. Reyes

Authors: J.M. Carmona, J.L. Cortés, M.A. Reyes, J.J. Relancio

Title of the work: Time delays, choice of energy-momentum variables and relative locality in doubly special relativity

06/10/2021 Corfu, Greece

Second Annual Conference COST Action CA18108 **Type of participation:** Oral presentation

Speaker: M.A. Reyes

Authors: J.M. Carmona, J.L. Cortés, M.A. Reyes, J.J. Relancio

Title of the work: Effects of new physics in neutrino propagation

Type of participation: Oral presentation

Speaker: J.M. Carmona

Authors: J.M. Carmona, J.L. Cortés, L. Pereira, M.A. Reyes, J.J. Relancio

Title of the work: Physics of the universe transparency in a deformed kinematics

● NETWORKS AND MEMBERSHIPS

Napoli, Italy

CA23130 - Bridging high and low energies in search of quantum gravity

Zaragoza, Spain

CA18108 - Quantum gravity phenomenology in the multi-messenger approach

Zaragoza, Spain

CAPA - Centro de Astropartículas y Física de Altas energías

● PROJECTS

01/09/2025 - 31/08/2028

PID2024-160228NB-I00: Mucho más allá de los modelos estándar **Principal Investigators:** Javier Redondo Martín, Siannah Peñaranda Rivas

Performing entity: University of Zaragoza

Funding entity: Agencia Estatal de Investigación (Spain). European Union

Funding amount: 382.125 €

Role: Research Team Member

01/01/2023 - 31/12/2025

E21_23R: Grupo Teórico de Física de altas energías **Principal Investigators:** Fernando Falceto Blecua, Eduardo Follana Adin

Performing entity: University of Zaragoza

Funding entity: Gobierno de Aragón (Spain)

Funding amount: 41.175 €

Role: Research Team Member

01/09/2022 - 31/08/2025

PID2021-126078NB-C21: Aún más allá de los modelos estándar: materia oscura, gravedad y simetría.

Principal Investigators: Javier Redondo Martín, Siannah Peñaranda Rivas

Performing entity: University of Zaragoza

Funding entity: Agencia Estatal de Investigación (Spain). European Union

Funding amount: 387.200 €

Role: Research Team Member

01/01/2020 - 31/12/2022

E21_20R: Grupo Teórico De Física De Altas Energías **Principal Investigators:** Manuel Asorey Carballeira

Performing entity: University of Zaragoza

Funding entity: Gobierno de Aragón (Spain)

Funding amount: 26.953 €

Role: Research Team Member

01/09/2020 - 30/09/2022

PGC2018-095328-B-I00: Más allá de los modelos estándar: simetría, gravedad y materia oscura **Principal Investigators:** Eduardo Follana Adin, Javier Redondo Martín

Performing entity: University of Zaragoza

Funding entity: Agencia Estatal de Investigación (Spain). European Union

Funding amount: 326.700 €

Role: Research Team Member

● HONOURS AND AWARDS

23/06/2023 University of Zaragoza

Ph.D. with "Cum Laude" Honors and International Mention

01/01/2020 Agencia estatal de investigación (Spain)

FPI Predoctoral Fellowship

01/01/2019 University of Zaragoza

"Matrícula de Honor" in Master's Thesis

01/01/2018 University of Zaragoza

"Matrícula de Honor" in Bachelor's Thesis

● **LANGUAGE SKILLS**

Mother tongue(s): **SPANISH**

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
ENGLISH	B2	B2	B2	B2	B2

● **RESEARCH STAYS**

28/09/2025 - 08/10/2025

Short Term Scientific Mission (STSM) CA23130

Performing entity: Institut d'Astrophysique de Paris, Sorbonne University

City: Paris, France

Funding entity: COST Action 23130

22/06/2025 - 02/07/2025

Research Stay

Performing entity: University of Rijeka

City: Rijeka, Croacia

Funding entity: University of Rijeka

27/02/2023 - 27/05/2023

Doctoral Stay (International Mention)

Performing entity: University of L'Aquila

City: Abruzos, Italy

Funding entity: Agencia Estatal de Investigación (Spain)

11/09/2022 - 25/09/2022

Short Term Scientific Mission (STSM) CA18108

Performing entity: University of L'Aquila

City: Abruzos, Italy

Funding entity: COST Action 18108