

# Frontier research in astrophysics and particle physics

**MASTER'S DEGREE IN PARTICLE PHYSICS AND PHYSICS OF  
THE COSMOS**

***UNIVERSIDAD INTERNACIONAL MENÉNDEZ PELAYO***

This document can be used as reference documentation of this subject for the application for recognition of credits in other study programmes. For its full effect, it should be stamped by UIMP Student's Office.



## GENERAL DATA

### Name

Frontier research in astrophysics and particle physics

### Code

102445

### Academic year

2020-21

### Degree

[MASTER'S DEGREE IN PARTICLE PHYSICS AND PHYSICS OF THE COSMOS](#)

### ECTS Credits

3

### Type

MANDATORY

### Duration

Cuatrimestral

### Language

## FACULTY

### Coordinator/s

**Vielva Martínez, Patricio**

*Científico Titular del CSIC.  
Instituto de Física de Cantabria (IFCA), CSIC-UC*

### Lecturers

**Martín Carrillo, Antonio**

*Assistant Professor in Astrophysics  
University College Dublin*

**Domcke , Valerie**

*CERN, EPFL*

**Gómez Gramuglio, Gervasio**

*Científico Titular del CSIC.  
Instituto de Física de Cantabria (IFCA), CSIC-UC*

**Estrada Vigil, Juan Cruz**

*Doctor en Física  
Sr. Scientists, Astrophysics Department  
Fermi National Accelerator Laboratory*

**Sánchez Álvaro, Eusebio**

*Investigador Científico de OPI  
CIEMAT*

**Coloma Escribano, María del Pilar**

*Investigador Ramón y Cajal  
Instituto de Física Teórica UAM/CSIC*

**Bulbul , Esra**

*Max Planck Institute for extraterrestrial Physics*

**Kavanagh , Bradley James**

*Postdoctoral researcher (in astroparticle physics)  
Instituto de Física de Cantabria (Universidad de Cantabria/CSIC)*

**Heinemeyer , Sven**

*Profesor de Investigador  
Instituto de Física Teórica (IFTE), CSIC-UAM*

**Bonomi , Germano**

*PROFESSORE ORDINARIO (FULL PROFESSOR)  
UNIVERSITA' DEGLI STUDI DI BRESCIA*

## SCHEDULE

### Timetable

21/12/2020

11:45 - 13:45

Applications of cosmic ray muons

Germano Bonomi

PROFESSORE ORDINARIO (FULL PROFESSOR)  
UNIVERSITA' DEGLI STUDI DI BRESCIA

08/01/2021

11:45 - 13:45

Gamma-Ray Bursts and Gravitational Waves: Playing detective with the Universe

Antonio Martín Carrillo

Assistant Professor in Astrophysics  
University College Dublin

08/02/2021

11:45 - 13:45

Unveiling the hot baryons in the largest cosmic structure

26/02/2021

17:00 - 19:00

Dark Matter below the mass of the proton

Juan Cruz Estrada Vigil

Doctor en Física  
Sr. Scientists, Astrophysics Department  
Fermi National Accelerator Laboratory

19/04/2021

11:45 - 13:45

Galaxy surveys for cosmology

Eusebio Sánchez Álvaro

Investigador Científico de OPI  
CIEMAT

30/04/2021

11:45 - 13:45

Dark Science with Clusters of Galaxies

Esra Bulbul

Max Planck Insitute for extraterrestrial Physics

07/05/2021

11:45 - 13:45

Why the Standard model is not enough?

Sven Heinemeyer

Profesor de Investigador  
Instituto de Fisica Teorica (IFTE), CSIC-UAM

10/05/2021

11:45 - 13:45

Gravitational Waves and Early Universe physics, especially Leptogenesis and Baryogenesis

Valerie Domcke

CERN, EPFL

14/05/2021

11:45 - 13:45

Introduction to neutrino physics

María del Pilar Coloma Escribano

Investigador Ramón y Cajal  
Instituto de Física Teórica UAM/CSIC

31/05/2021

10:30 - 12:30

Can the Dark Matter in the Universe be Black Holes?

Bradley James Kavanagh

Postdoctoral researcher (in astroparticle physics)  
Instituto de Física de Cantabria (Universidad de Cantabria/CSIC)

21/06/2021

10:00 - 12:00

Presentación de Trabajos

Patricio Vielva Martínez

Científico Titular del CSIC.  
Instituto de Física de Cantabria (IFCA), CSIC-UC

22/06/2021

10:00 - 12:00

Presentación de Trabajos

Gervasio Gómez Gramuglio

Científico Titular del CSIC.  
Instituto de Física de Cantabria (IFCA), CSIC-UC