

The dark universe

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

UNIVERSIDAD INTERNACIONAL MENÉNDEZ PELAYO

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GENERAL DATA

Name

The dark universe

Code

102453

Academic year

2023-24

Degree

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

ECTS Credits

6

Type

ELECTIVE

Duration

Cuatrimestral

Language

FACULTY

Coordinator/s

Kavanagh , Bradley James

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

Lecturers

Diego Rodríguez, José María

*Investigador Científico CSIC
Instituto de Física de Cantabria*

Vilar Cortabitarte, Rocío

*Profesora Contratada Doctora
Universidad de Cantabria (UC)*

SCHEDULE

Timetable

30/01/2024

15:30 - 17:30

Intro: Dark Matter, Dark Energy (and Natural Units)

Bradley James Kavanagh

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

31/01/2024

15:30 - 17:30

Evidence for Dark Matter (Cosmology and BBN)

José María Diego Rodríguez

Investigador Científico CSIC
Instituto de Física de Cantabria

01/02/2024

15:30 - 17:30

Evidence for Dark Matter (Galaxies and Astrophysics)

José María Diego Rodríguez

Investigador Científico CSIC
Instituto de Física de Cantabria

06/02/2024

15:30 - 17:30

Examples & Discussion: Evidence for Dark Matter

José María Diego Rodríguez

Investigador Científico CSIC
Instituto de Física de Cantabria

07/02/2024

15:30 - 17:30

DM Candidates: Weakly Interacting Massive Particles

Bradley James Kavanagh

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

08/02/2024

15:30 - 17:30

WIMP Production and Indirect Detection

Bradley James Kavanagh

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

20/02/2024

15:30 - 17:30

DM Candidates: Axions

Igor García Irastorza

Profesor titular de universidad en física atómica, molecular y nuclear
Universidad de Zaragoza

21/02/2024

15:30 - 17:30

Detecting and constraining Axions

Igor García Irastorza

Profesor titular de universidad en física atómica, molecular y nuclear
Universidad de Zaragoza

22/02/2024

15:30 - 17:30

Future of Axion Searches

Igor García Irastorza

Profesor titular de universidad en física atómica, molecular y nuclear
Universidad de Zaragoza

27/02/2024

15:30 - 17:30

Examples and Discussion: Axion Dark Matter

Bradley James Kavanagh

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

28/02/2024

15:30 - 17:30

Primordial Black Holes as Dark Matter

Bradley James Kavanagh

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

29/02/2024

15:30 - 17:30

Alternative models of Dark Matter (MOND)

Bradley James Kavanagh

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

05/03/2024

15:30 - 17:30

Evidence for Dark Energy (DE)

José María Diego Rodríguez

Investigador Científico CSIC
Instituto de Física de Cantabria

06/03/2024

15:30 - 17:30

DE Models: CC, Quintessence, Modified Gravity...

José María Diego Rodríguez

Investigador Científico CSIC
Instituto de Física de Cantabria

07/03/2024

15:30 - 17:30

Constraining DE (current & future surveys)

José María Diego Rodríguez

Investigador Científico CSIC
Instituto de Física de Cantabria

12/03/2024

15:30 - 17:30

Examples & Discussion: Dark Energy

Bradley James Kavanagh

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

13/03/2024

15:30 - 17:30

Challenges of LambdaCDM

Bradley James Kavanagh

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

14/03/2024

15:30 - 17:30

Future of Dark Matter searches

Bradley James Kavanagh

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

19/03/2024

15:30 - 17:00

Oral presentations

José María Diego Rodríguez

Investigador Científico CSIC
Instituto de Física de Cantabria

20/03/2024

15:30 - 17:00

Oral presentations

Bradley James Kavanagh

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

08/04/2024

15:30 - 17:30

WIMP Direct Detection

Rocío Vilar Cortabitarte

Profesora Contratada Doctora
Universidad de Cantabria (UC)

09/04/2024

15:30 - 17:30

WIMP Collider searches

Rocío Vilar Cortabitarte

Profesora Contratada Doctora
Universidad de Cantabria (UC)

10/04/2024

15:30 - 17:30

Examples & Discussion: WIMP Dark Matter

Rocío Vilar Cortabitarte

Profesora Contratada Doctora
Universidad de Cantabria (UC)

