Friday 5

09:30 h | Gravitational waves Electromagnetic counterparts

Alberto J. Castro-Tirado

10:30 h | Dark Matter

David García Cerdeño

Investigador

Institute for Particle Physics Phenomenology

Durham University

12:00 h | Closing Session

Alicia Sintes

Afternoon Sessions:

IFCA-Facultd de Ciencias

Universidad de Cantabria

The subject of the "International School of Particle Physics and Cosmology" includes those areas of study aimed at the understanding of the fundamental structure of the universe and its dynamics, from the smallest objects, governed by relativistic quantum field theories, to the largest, under the laws of general relativity.

The first edition of the school, this year 2019, is dedicated to the investigation of the universe with a new instrument, the "gravitational waves". Thus, the title of the present edition is: "New windows to the universe: Gravitational waves and multi-messengers". The advent of gravitational wave detectors, neutrino telescopes and the latest instruments in electromagnetic channels is increasing dramatically our power to extract information from the Universe at large. In the process, we expect to advance our understanding of fundamental questions, ranging from the structure of the Big Bang to the ultimate fate of the Universe, and the physics of its most extreme objects, such as black holes. The school will provide an up to date view of experiments and theory in this multidisciplinary area of research, and should appeal to students and early researchers interested in particle physics, gravitation, cosmology and astrophysics.

The programme includes morning lectures followed by afternoon practices' sessions. The profile of the potential interested student is relatively broad; includes graduate students working towards a PhD, master students and latter-year undergraduates.

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INFORMACIÓN GENERAL

Hasta el 14 de junio de 2019

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Campus de Las Llamas
Avda. de los Castros, 42
39005 Santander
Tel. 942 29 87 00 / 942 29 87 10

Madrid
C/ Isaac Peral, 23
28040 Madrid
Tel. 91 592 06 31 / 91 592 06 33

A partir del 17 de junio de 2019

Santander
Palacio de la Magdalena
39005 Santander
Tel. 942 29 88 00 / 942 29 88 10

alumnos@uimp.es

PLAZOS

Solicitud de becas

Hasta el día 27 de mayo,
para los cursos que comiencen
antes del 5 de julio de 2019

Hasta el día 14 de junio,
para los cursos que comiencen a
partir del 8 de julio de 2019

Apertura de matrícula

Desde el 6 de mayo de 2019
(plazas limitadas)

Horario general

de 9:00 a 14:00 h
de 16:00 a 18:00 h
(excepto viernes)

Código 64B0 / Tarifa: C / ECTS: 1

Organizado en colaboración con:

CSIC
Consejo Superior de Investigaciones Científicas

Colaboración:

IAA-CSIC · IFIC Instituto de Física Corpuscular · ift Instituto de Física Teórica UAM-CSIC · Excelencia Severo Ochoa

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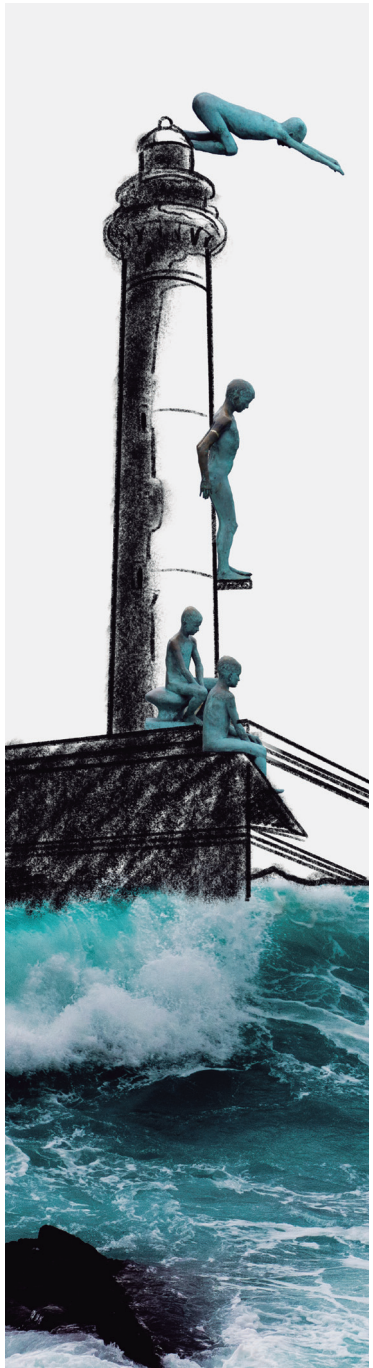

I INTERNATIONAL SCHOOL ON PARTICLE PHYSICS AND COSMOLOGY

New windows to the Universe: gravitational waves and multi-messengers

Teresa Rodrigo

Alberto J. Castro-Tirado

1 - 5 July

www.uimp.es

SANTANDER, 2019 Programa académico

I INTERNATIONAL SCHOOL ON PARTICLE PHYSICS AND COSMOLOGY

New windows to the Universe: gravitational waves and multi-messengers

Directors

Teresa Rodrigo
Catedrática de Física Atómica
Directora del Instituto de Física de Cantabria (CSIC-UC)

Alberto J. Castro-Tirado
Instituto de Astrofísica de Andalucía

1 -5 July

Monday 1

10:00 h | Introduction to the first edition of the school
Teresa Rodrigo
Alberto J. Castro-Tirado

10:45 h | Particle Physics-Overview
Alberto Casas
Profesor de Investigación
Instituto de Física Teórica (IFT-UAM/CSIC)

12:00 h | An overview on Astroparticles
Enrique Zas
Catedratico de Física
Universidad de Santiago de Compostela

12:45 h | Cosmology
Juan García-Bellido
Catedrático de Física Teórica
Universidad Autónoma de Madrid
Investigador del Instituto de Física Teórica, CSIC

15:30 h | Multimedia exercises: Introductory documentaries on High Energy and Neutrino Astrophysics
María Teresa Ceballos
Científica Titular
Instituto de Física de Cantabria (CSIC-UC)
Francisco Carrera
Catedrático de Universidad
Instituto de Física de Cantabria (CSIC-UC)

Tuesday 2

09:30 h | An overview from CMB
Patricio Vielva
Científico Titular
Instituto de Física de Cantabria (CSIC-UC)

10:30 h | Gamma Rays
Elena Moretti
Investigadora
Institut de Física d'Altes Energíes (IFAE)

12:00 h | Cosmic rays
Antonio Bueno Villar
Catedrático de Universidad
Departamento de Física Teórica y del Cosmos
Facultad de Ciencias, Universidad de Granada

12:45 h | Neutrino Telescopes
Juan José Hernández-Rey
Director del Instituto de Física Corpuscular (IFIC, CSIC)
Universidad de Valencia

15:30 h | Multimedia exercises: Introduction to Gravitational Waves event analysis
Sascha Husa
Profesor asociado de Física Teórica
Universidad de las Islas Baleares
Gervasio Gómez
Científico Titular
Instituto de Física de Cantabria (CSIC-UC)
Alicia Sintes
Profesora Titular de Universidad
Universidad de las Islas Baleares

Wednesday 3

09:30 h | General relativity & sources of gravitational waves
Sascha Husa

10:30 h | Detection of gravitational waves: LIGO and VIRGO
Gabriela González
Professor of Physics
Louisiana State University

12:00 h | Gravitational waves data analysis
Alicia Sintes

12:45 h | LISA mission
Carlos Fernández Sopuerta
Científico Titular
Instituto de Ciencias del Espacio (ICE, CSIC)

15:30 h | Multimedia exercises: Gravitational waves event analysis (LIGO data)
Sascha Husa
Alicia Sintes
Gervasio Gómez

Thursday 4

09:30 h | Quantum gravity & applications to Back Holes and Cosmology
Jorge Pullin
Horace Hearne in Theorical Physics
Louisiana State University

10:30 h | Black Holes/EHT
José Luis Gómez
Investigador
Instituto de Astrofísica de Andalucía - CSIC

12:00 h | Multi-messengers & the future on the Universe
Gabriela González

12:45 h | Electromagnetic signals from heavy elements nucleosynthesis
Gabriel Martínez-Pinedo
Investigador
Institut für Kernphysik Technische Universität Darmstadt

15:30 h | Multimedia exercises: Detectability of gravitational waves with microwave data
Alberto J. Castro-Tirado
Diego Herranz
Profesor titular. Universidad de Cantabria
Patricio Vielva