SUMMER STUDENT LECTURE PROGRAMME 2022

Lecture Title	Astroparticle Physics 1/2
Lecturer's name	Bradley J. Kavanagh
E-mail Address	kavanagh@ifca.unican.es
Short CV	Post-doctoral researcher at Instituto de Fisica de Cantabria (IFCA, UC-CSIC) in Santander, Spain.
	Former research fellow at GRAPPA Institute, Amsterdam and LPTHE, Paris. PhD in Particle Theory from University of Nottingham, UK (2014).
	Main research field: astroparticle theory, including direct dark matter searches; primordial black holes; and gravitational wave probes of New Physics.
	Member of the LISA, LGWA (Gravitational Waves), Athena (X-rays) and CADEx (direct axion searches) collaborations.
Lecture Content	These lectures provide an introduction to astroparticle physics. We begin with a brief history, before discussing the various messengers we use to observe the energetic Universe.
	In Lecture 1, we discuss charged cosmic rays, gamma rays and high energy neutrinos. For each of these messengers, we discuss how they are produced and how we detect them. We also discuss the interconnections between them and what they tell us about the Universe.

Pre-requisites: earlier series of lectures that the students should follow Particle World (David Tong) Introduction to Cosmology (Daniel Baumann)

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Other	pre-rec	uisites:

None