



## Blended Intensive Programme: GraSPA 2024 Summer School

### Introduction to Particle and Astroparticle Physics

<https://lapp.in2p3.fr/graspa2024>

### General Information

<b>Objectives and Description:</b>	<p>This Blended Intensive Programme aims to introduce Particle Physics and Astroparticle Physics to 3rd and 4th year undergraduate physics students while touching on the latest results and challenges in these fields. For about a week, students will be immersed in an international research atmosphere, and will be able to spend time and discuss at length with scientists working in the field. There will be lectures on both the theoretical and the experimental sides of LHC Physics, Neutrinos, Flavour Physics, Astroparticle Physics (dark matter and cosmic rays) and Gravitational Wave Physics. There will also be hands-on sessions as well as students' presentations on their own work/topics of interest.</p>
<b>Target audience/participants profile</b> <b>language of instruction,</b> <b>requirements</b>	<p>3<sup>rd</sup> or 4<sup>th</sup> year Physics students. Courses will be in English.</p> <p>No background knowledge on the topics covered beyond a popular science level is required. However, a strong basis in Quantum Mechanics and a good knowledge of Special Relativity are expected.</p>
<b>Dates for physical activity, location:</b> <b>Dates for virtual component:</b>	<p>July 16<sup>th</sup> to 23<sup>rd</sup> 2024, Laboratoire d'Annecy de Physique des Particules (LAPP), Annecy, France</p> <p>August 29<sup>th</sup> to 30<sup>th</sup> 2024</p>
<b>Virtual Component Description:</b>	<p>Student groups will be created during the Summer School and remote work will be carried out afterwards on a topic proposed by the School organizers. Students will present their work at an online event at the end of August.</p>
<b>No of ECTS issued:</b>	<p>3 ECTS, subject to attendance and the obtention of a minimal mark of 10/20 for the remote work</p>

## Detailed Programme (preliminary)

	July Tue 16	Wed 17	Thu 18	Fri 19	Sat 20	Mon 22	Tue 23	August 29 – 30
8:30-9:00	<b>Welcome to the labs (30'</b>	(B)SM	Gravitational Waves TH	Flavour Physics				<b>ONLINE GROUP WORK PRESENTATIONS</b>
9:00-9:30	Intro to PP					Gravitational Waves EXP	Students Presentations (13)	
9:30-10:00			Astroparticle TH		Hands-on		Gamma-ray Astrophysics	
10:00-10:30		coffee				coffee		
10:30-11:00	coffee	(B)SM	coffee	coffee	coffee	Gravitational Waves EXP	coffee	
11:00-11:30	Students presentations (1,2)		Flavour Physics	Astroparticle TH	Hands-on		Cosmological Surveys	
11:30-12:00		Students presentations (6)				Students presentations (11)		
12:00-14:00	lunch	lunch	lunch	lunch	lunch	lunch	lunch & school's end	
14:00-15:00	Intro to detectors	LHC Exp	Gravitational Waves TH	Visit to CERN	Hands-on	Dark matter direct detection EXP		
15:00-16:00	Intro to Astrophysics	LHC Exp	Neutrino Physics		Hands-on	Dark matter direct detection EXP		
16:00-16:30	coffee	coffee	coffee			coffee		
16:30-17:30	Intro to Astrophysics + Students presentations (3)	Students presentations (7,8)	Neutrino Physics			<b>Q&amp;A session</b>		
17:30-18:00	Students presentations (4,5) <b>Reception 18:30</b>	Students presentations (9)	Students presentations (10)		<b>19h30: Social Dinner</b>	Students Presentations (12)		



## Organising Board and Application Procedure

<b>Organising Board:</b>	<b>Receiving/Host university:</b> <b>Université Savoie Mont Blanc</b> , France (coordinators: Pablo del Amo Sánchez <a href="mailto:pablo.del-amo-sanchez@univ-smb.fr">pablo.del-amo-sanchez@univ-smb.fr</a> and Lucia Di Ciaccio <a href="mailto:Lucia.Burkhardt@univ-smb.fr">Lucia.Burkhardt@univ-smb.fr</a> ) <b>Partner universities:</b> <b>Università di Torino</b> , Italy (Roberto Covarelli, <a href="mailto:roberto.covarelli@unito.it">roberto.covarelli@unito.it</a> )
<b>Application procedure</b> <b>Deadline</b>	Candidates must contact their Erasmus coordinator/International Relations office in order to apply for the Erasmus funding. Applications must be submitted before May 1st 2024. Additionally, candidates must also register in <a href="https://lapp.in2p3.fr/graspa2024">https://lapp.in2p3.fr/graspa2024</a>

