



# Summer School

on Particle and  
Astroparticle Physics



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# GraSPA

# 2024, 2025

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

<https://lapp.in2p3.fr/graspa2025>



# What? How?

- 1 week-long School, ~4h (theoretical & experimental) introductory courses on few topics: LHC physics, neutrinos, heavy flavours, astrophysics, astroparticles, dark matter, gravitational waves. Hands-on sessions on computational tools (ROOT), Virgo-like interferometers, astroparticle pheno. Q&A session on careers in research/academia
- Accommodation and lunches paid by School, travel funded by students or their institutions (travel grants for few students, a few paid by IDPASC institutes).
- Mostly local lecturers, a few high profile externals
- Budget ~ 19 k€ in 2024, 20.5 k€ in 2025 (from Enigmass, LAPP, LAPTh, Université Savoie Mont Blanc, CPTGA, INSU, IN2P3)

# Erasmus+ BIP attempt in 2024

- Blended Intensive Programme: hybrid (online + in-person parts), short training programmes now eligible for Erasmus+ funding (both for students AND for organisers). **Minimum of 15 Erasmus+ students required!!!**
- Multitude of difficulties encountered, mostly administrative/bureaucratic:
  - BIP application deadlines different for each university, often only 1 or 2 calls per year
  - Some International Relations (IR) departments not responding
  - Some IR departments/contact people not really aware how BIPs work
  - Some universities keep BIP funding for the programmes organised by their partners only
  - Even when all of the above was fine, Erasmus agreements did not always cover BIPs → needed additional iterations between IR departments to modify agreement in a hurry
- Result:
  - minimum of 15 Erasmus+ students not attained
  - → Erasmus+ label retired 1 month before start of the School
  - → less funding for School, and for applicants that had managed through all the bureaucratic steps!
- Conclusion: take time to ensure all the above difficulties have been addressed by a sufficiently high number of partners before trying again

# GraSPA in 2025

- 67 applications, 30 admitted (+4 local summer students)
- Decrease in applications:  $\sim 100 \rightarrow 67$ .  
Overabundance of Schools for undergraduates? Network of contacts less effective?
- $\sim 1/2$  3rd year students (end bachelor),  
 $\sim 1/2$  4th year students (beginning master)
- New in 2024: all students do a 5-min presentation on their project work/summer work/physics topic of interest
- 14 students from IDPASC institutes (Lisboa, Oviedo, Padova, Paris Sorbonne, Paris Cité, Trento, Valencia)

|             | Wed 16   | Thu 17                             | Fri 18                             | Sat 19           | Mon 21  | Tue 22   | Wed 23                                |
|-------------|--|------------------------------------|------------------------------------|------------------|---|--|---------------------------------------|
| 8:30-9:00   | Welcom<br>e to the<br>labs (30')   | Students (6)                       | LHC Physics<br>[Covarelli]         |                  |   |  |                                       |
| 9:00-9:30   | Intro to<br>PP<br>[del Amo<br>Sanchez]                                     | (B)SM                              |                                    | Hands-on         | Astroparticle &<br>Cosmology<br>TH [Serpico]        | Gravitational<br>Waves EXP<br>[Gouaty]             | Gamma-ray<br>Astrophysics<br>[Caroff] |
| 9:30-10:00  |  |                                    | Flavour<br>Physics<br>[Guadagnoli] |                  |   |  |                                       |
| 10:00-10:30 |  |                                    |                                    |                  | coffee  | coffee   | coffee                                |
| 10:30-11:00 | coffee   | coffee                             | coffee                             |                  | Astroparticle &<br>Cosmology TH<br>[Serpico]        | Gravitational<br>Waves EXP<br>[Gouaty]             | Gamma-ray<br>Astrophysics<br>[Caroff] |
| 11:00-11:30 | Students<br>(1,2)  | (B)SM                              | LHC Physics<br>[Covarelli]         |                  | Neutrino<br>Physics<br>[López-<br>Moreno]           |  |                                       |
| 11:30-12:00 |  |                                    |                                    |                  |   |  |                                       |
| 12:00-14:00 | lunch  | Lunch (from<br>12:30)              | lunch                              | lunch            | Lunch (from<br>12:30)                               | lunch  | lunch & school's<br>end               |
| 14:00-15:00 | Intro to<br>detectors<br>[Lorenzo<br>Martinez]                             | Students<br>(7,8)                  | Visit to<br>CERN                   | Hands-on         | Gravitational<br>Waves TH<br>[Romero-Rodri<br>guez] | Dark matter<br>& axion<br>detection<br>[Giannotti] |                                       |
| 15:00-16:00 | Intro to<br>Astrophy<br>sics<br>[Genolini]                                 | Flavour<br>Physics<br>[Guadagnoli] |                                    |                  | Gravitational<br>Waves TH<br>[Romero-Rodri<br>guez] | Dark matter<br>& axion<br>detection<br>[Giannotti] |                                       |
| 16:00-16:30 | coffee   | coffee                             |                                    |                  | coffee  | coffee   |                                       |
| 16:30-17:30 | Intro to<br>Astrophy<br>sics<br>[Genolini]<br><br>17:00<br>Students<br>(3) | Flavour<br>Physics<br>[Guadagnoli] |                                    |                  | Neutrino<br>Physics<br>[López-<br>Moreno]           | Q&A<br>session                                     |                                       |
| 17:30-18:00 | Students<br>(4,5)  | Students<br>(9,10)                 |                                    |                  |   |  |                                       |
|             | 18:30<br>Receptio<br>n   |                                    |                                    | 19h30:<br>Dinner |   |  |                                       |



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