



LABORATÓRIO DE INSTRUMENTAÇÃO
E FÍSICA EXPERIMENTAL DE PARTÍCULAS
partículas e tecnologia

III LIP Summer Student Program / 2019 Induction Week

Lisbon, Coimbra, Braga — July 15-19, 2019

Welcome!

- This Week
- Your Project
- Contracts, computing, etc
- Mid-term chats
- Final Workshop
- Write-up

this week

- **Lectures**

- 2 introductory lectures in the morning (9:30-11:30)
- Themes: LHC + Detectors + Astroparticles + Structure of Matter
- Videoconference between Lisbon-Coimbra-Braga

- **Tutoring discussions**

- This is the time (11:30-12:30) to [Ask your questions!](#)
- Interactive discussion with a researcher about a topic beyond the lectures

- **Hands-on exercises**

- The afternoons (14:00-17:00) are dedicated to hands-on tutorials
- (in Lisbon this take place at FCUL, not 3Is!)

the agenda

<https://indico.lip.pt/event/600/>

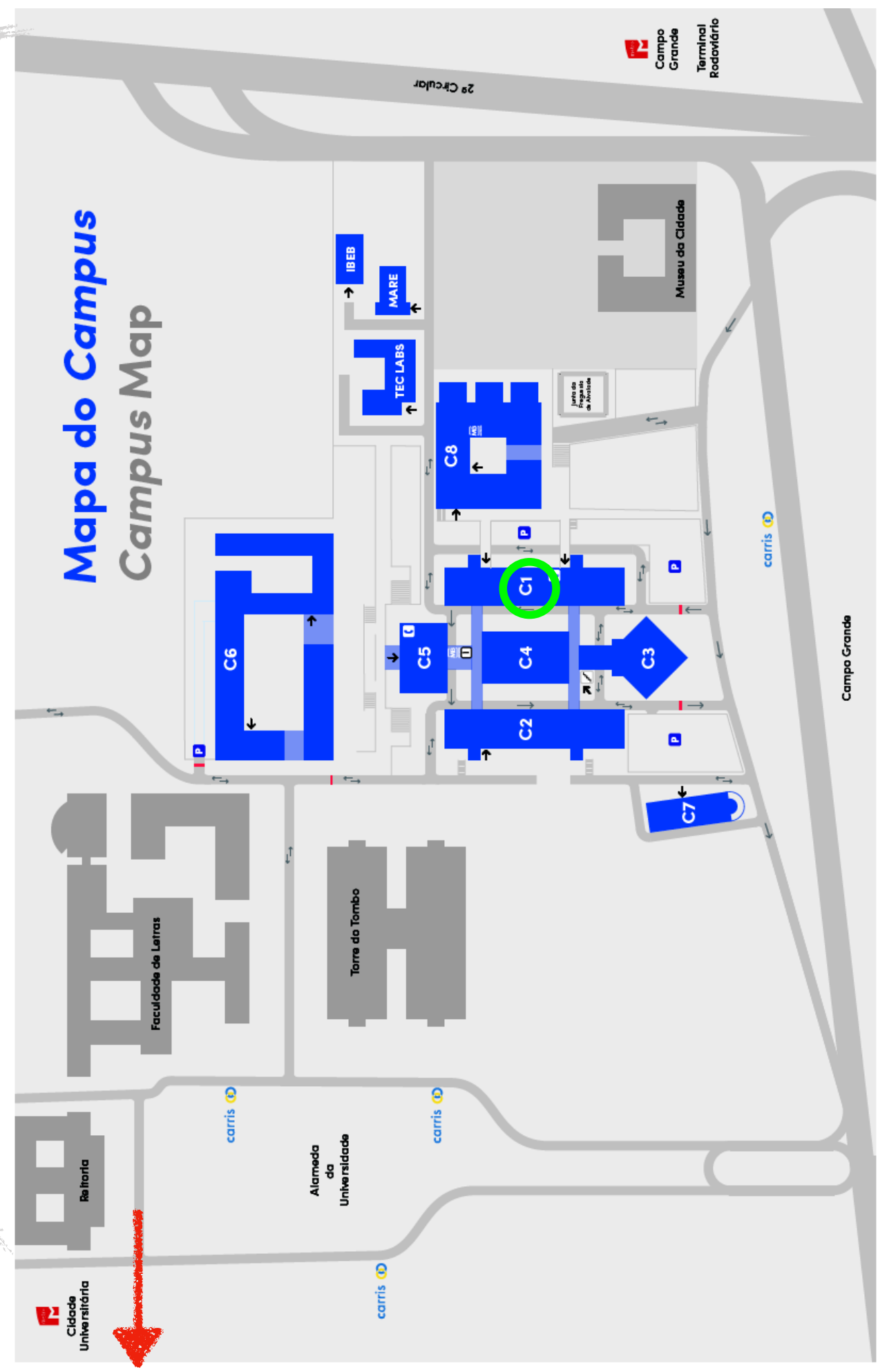
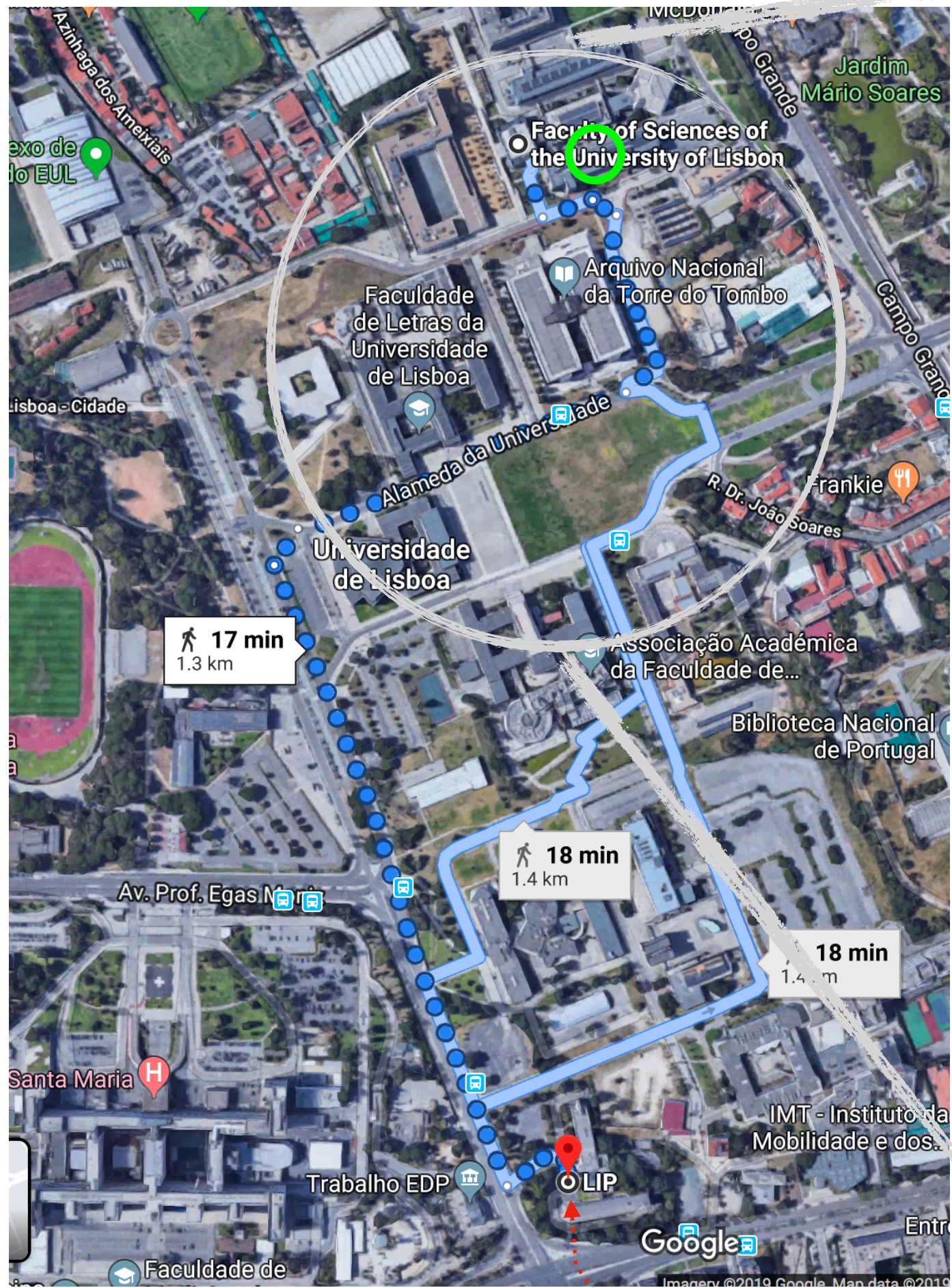
	15 Jul 2019	16 Jul 2019	17 Jul 2019	18 Jul 2019	19 Jul 2019
AM	09:20 Opening ()	09:30 Lecture (until 11:30) ()	09:30 Lecture (until 11:30) ()	09:30 Lecture (until 11:30) ()	09:30 Lecture (until 11:30) ()
	09:30 Introduction to particle physics (until 11:30) ()	09:30 Introduction to LHC Physics - Michele Gallinaro (LIP) ()	09:30 Detectors and data acquisition in particle physics - Agostinho Gomes (LIP) ()	09:30 Astroparticle physics - Rúben Conceição (LIP) ()	09:30 Physics of the Nucleon - Catarina Quintans (LIP) ()
	09:30 Introduction to Particle Physics - Mário Pimenta (LIP) ()	10:45 Higgs & BSM - Ricardo Gonçalves (LIP) ()	10:15 RPCs tbc - Alberto Blanco (LIP) ()	10:45 Neutrinos - Sofia Andringa (LIP) ()	10:45 Heavy ion physics - Helena Santos (LIP) ()
	11:30 Tutoring discussion (until 12:30) ()	11:30 Tutoring discussion (until 12:30) ()	10:45 Detector and physics simulation - Bernardo Tomé (LIP) ()	11:30 Tutoring discussion (until 13:30) ()	11:30 Tutoring discussion (until 12:30) ()
		11:30 Tutoring chat: LHC - Nuno Castro (LIP, and University of Minho) ()	11:30 Tutoring discussion (until 12:30) ()	11:30 Tutoring chat: Astro ()	11:30 Tutoring chat: Structure of matter - Liliana Apolinário (LIP) Helena Santos (LIP) Nuno Leonardo (LIP) ()
		11:30 Tutoring chat: LHC - Filipe Veloso (LIP, UC) (AD1)	11:30 Tutoring chat: Detectors - Alberto Blanco (LIP) (AD2)	11:30 Tutoring chat: Astro - Henrique Carvalho (LIP Minho) Raul Sarmiento (LIP) ()	
		11:30 Tutoring chat: LHC - Pedrame Bargassa (LIP) Nuno Leonardo (LIP) ()	11:30 Tutoring chat: Detectors - Tahereh Niknejad (LIP) Joao Gentil Mendes Saraiva (LIP) ()	11:30 Tutoring chat: Astro - Alex Lindote (LIP, UC) Elias Lopez-Asamar (LIP) (AD1)	
PM	14:00 Tutorial (until 17:00) ()	14:00 Tutorial (until 17:00) ()	14:00 Lecture (until 14:30) ()	14:00 Data Analysis (until 17:00) ()	
	14:00 Introduction to Linux and C++ - Diogo Bastos Ana Luisa Carvalho (LIP) Mariana Araújo (1.5.10) C_LinuxTutorial.pdf C++ Quick reference Some very complete slides on C++ The one page linux manual	14:00 Introduction to ROOT - Mariana Araújo Diogo Bastos Ana Luisa Carvalho (LIP) (1.5.11)	14:00 Introduction to statistics - Pedrame Bargassa (LIP) ()	14:00 Hands-on: Neutrinos - Valentina Lozza (LIP) Nuno Barros (LIP) Sofia Andringa (LIP) ()	
	14:00 Introduction to ROOT - João Pedro de Arruda Gonçalves (LIP) Luís Sintra Beatriz Lopes (LIP) (1.5.11) install_root.sh Some very complete slides in ROOT	14:00 Reconstruction with ROOT - Beatriz Lopes (LIP) João Pedro de Arruda Gonçalves (LIP) Luís Sintra (1.5.12)	14:30 Data Analysis (until 17:00) ()	14:00 LHC: HYPATIA and OpenData - Rute Pedro (LIP/FCUL) Helena Santos (LIP) ()	
			14:30 Likelihood fitting - Nuno Leonardo (LIP) ()		
			14:30 MultiVariate methods - Giles Strong (LIP) ()		

Morning lectures are plenary and broadcasted

Tutoring discussions (am) and exercises (pm) run locally and in parallel sessions

➡ students join one discussion led by a researcher on the theme of the day

➡ students pick one hands-on tutorial each afternoon (based on background + preference)



few starting points

- **Contracts**

- the minutes should be ready for your to sign
- if some information is missing please provide it (natalia@lip.pt) asap

- **Computing accounts**

- accounts on the LIP computing farm whenever needed should be set up
- you can connect to it from your own work laptop (helpdesk@lip.pt)

- **Office / Lab space**

- several rooms are made available for you to use during your internship
- you should arrange for this with your supervisor

Your project

- each of You will integrate an assigned research project
- everything related to the project — planing, development, dates, etc — is arranged entirely between the student and his/her supervisor(s)
- ➡ This morning students should meet their supervisor(s) — if not yet done! — and briefly discuss the first steps and organisation of the project.

mid-term gatherings

- during the summer period we may plan some activities, so we all get to know each other better
- there will be the possibility of short meetings where students may briefly present themselves and what they are up to in their projects (to fellow students and LIP researchers)
- other social events may materialize as well at the different poles, e.g. last year we had a “sardinhada” at 3Is downstairs

final workshop

- When: September 4-5th (mark the date!)
- Where: Lisbon 3Is (auditorium)

<https://indico.lip.pt/event/601/>

- What:
 - each student presents an introduction to and summary of her/his work
 - to fellow students and LIP researchers
 - (you may check the format from previous years:)
 - <https://www.lip.pt/training/summer-student-program/index.php?option=150>
- This event formally marks the end of this year's summer program

paper write-up

- this year the students will have the opportunity to produce a write-up document describing the work they have performed
- the format is O(5)-page long paper-like research document
- the document will be shared in a public repository (and be referenced in CV's) after light refereeing by the supervisors
- all students are **strongly encouraged** to produce such a report so it can be published by mid October
- the abstract is further published in the LIP News magazine
- note: further details will be later circulated in the mailing list

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