



# GGI LECTURES ON THE THEORY OF FUNDAMENTAL INTERACTIONS

7-24 JANUARY 2020



The Galileo Galilei Institute for Theoretical Physics





## Lecturers and topics

**Nima ARKANI-HAMED** (IAS Princeton)

*Positive Geometry of the Real World*

**Guilherme PIMENTEL** (Amsterdam U.)

*Cosmological Fluctuations and their Bootstrap*

**Luigi DEL DEBBIO** (Edinburgh U.)

*QFTs on the lattice*

**Silvia PASCOLI** (Durham U.)

*Neutrino Physics*

**Rafael PORTO** (DESY Hamburg)

*Gravitational waves: A modern approach*

**Jesse THALER** (MIT)

*QCD and Collider Physics*

## Organizers

**BRANDO BELLAZZINI** (IPhT CEA-Saclay)

**MARCO CIRELLI** (LPHE CNRS Jussieu)

**STEFANIA DE CURTIS** (Florence U. & INFN)

**FABIO MALTONI** (Bologna U. & Louvain U.)

**GIULIANO PANICO** (Florence U. & INFN)

**MICHELE REDI** (Florence U. & INFN)

**RICCARDO TORRE** (INFN, Genova & CERN)



# TRAINING PROGRAM

- The lectures are primarily addressed to Ph.D. students in Theoretical Physics.
- The aim of the school is to give a pedagogical introduction to the basic concepts and tools needed for research, covering the foundations of the subjects at a deep and advanced level. Presentations will be mainly given on the blackboard.

- Students are requested to attend all the lectures
- Students have to register their presence to the lectures each day

- The courses will be officially part of the Italian Ph.D. training program for the Universities joining the initiative.
- Students who satisfy the course requirements will receive a Certificate of Attendance.

- Those students who need to take a final exam in order to insert these courses in their PhD training program shall contact the organizers before Thursday 9th.

# GGI Lectures on the Theory of Fundamental Interactions

## January 2020

	9:00- 10:45	break	11:15 - 13:00	lunch	14:30 - 16:15	evening
monday 6						
tuesday 7			Porto		Thaler	cocktail
wednesday 8	Porto		Thaler		students' gong-show	
thursday 9	Thaler		Porto		students' gong-show	
friday 10	Porto		Thaler			
monday 13			Del Debbio		Pascoli	
tuesday 14	Del Debbio		Pascoli		guided visit Villa 'Il Gioiello'	
wednesday 15	Pascoli		Del Debbio			
thursday 16	Del Debbio		Pascoli			
friday 17	Pascoli		Del Debbio			
monday 20			Pimentel		Arkani-Hamed	
tuesday 21	Pimentel		Arkani-Hamed		students' seminars	
wednesday 22	Arkani-Hamed		Pimentel		students' seminars	
thursday 23	Pimentel		Arkani-Hamed			
friday 24	Arkani-Hamed		Pimentel			



- **Gong-Show sessions** → Student presentation on Wednesday 8 and Thursday 9 afternoons. Please send a pdf file to marco.cirelli@gmail.com (if you did not already).
- **Discussion sessions** are not formally organized, but the lecturers are in principle available in the afternoons.
- Students who want to give a presentation of their research activity can contact the organizers. The afternoon of Tuesday 21st, will be devoted to **students' seminars**. In case we will have many volunteers, we will continue on Wednesday 22nd.
- Tonight: **Welcome drink** at GGI. Next Tuesday: visit to **Villa Il Gioiello**.

slides, notes and videos on:

[http://www.ggi.infn.it/ggilectures/ggilectures2020/  
program.html](http://www.ggi.infn.it/ggilectures/ggilectures2020/program.html)



# LIVING AT THE GGI

- ~~Please pay 5 € to our secretary Annalisa for the kitchen (coffee etc).~~
- Please leave the kitchen clean.
- LUNCH is offered at 13:15.
- Most of you have a desk in an office. Unfortunately not all of you have the key. Please organize yourself with your roommate.
- You will have free entrance by using your badge.
- The main entrance gate closes at 7:30 pm each day and it is closed on Saturday and Sunday. If you are in, you can dial the code "1433E" on the keyboard on the left of the gate to go out.
- In the week-end you must use the side gate to get in the GGI area. The key is the "pink" one.
- We will ask you to fill an **anonymous exit report** at the end of the school with questions about the lectures, the lecturers and the school organization.



**For any question please contact the organizers**

**Enjoy the School!**