

Scientific Program

Initial state and ultraperipheral
Jet production and properties in pp and in the medium
Event properties and hydro in small and large systems
Hadronization of light and heavy flavour across collision systems
Energy loss and transport in the medium and in small systems
QCD and astrophysics

QCD challenges from pp to AA collisions

Padova, 13-17 February, 2023



Dipartimento
di Fisica
e Astronomia
Galileo Galilei
UNIVERSITÀ DEGLI STUDI DI PADOVA

Website:
<https://indico.cern.ch/event/1135616/>
Email:
QCDchallengesPtoAA-PD2023@cern.ch



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M. Faggin	University & INFN Padova
A. Rossi (co-chair)	INFN Padova
F. Soramel	University & INFN Padova
L. Sestini (co-chair)	INFN Padova
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J. Zhu	INFN Padova

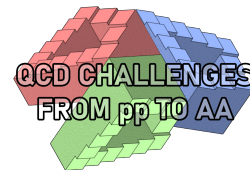
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The workshop series



QCD Challenges at the LHC: from pp to AA

18-22 January 2016
Hotel Montetaxco, Taxco Guerrero Mexico
Mexico/General timezone



31 October 2017 to 3 November 2017
Other Institutes
America/Mexico_City timezone

We are at the 4th edition



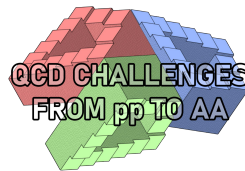
3rd International ping on QCD Challenges from pp to AA

August 19-23, 2019, in Lund, Sweden

3rd International ping on QCD Challenges from pp to AA

19-23 August 2019
Lund university
Europe/Stockholm timezone

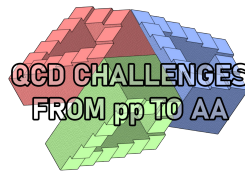
Goals and scientific programme



Main goals and features of the workshop:

- address QCD-related studies in different collision systems that intersect the interests of more “communities”: high-energy particle physics, QGP physics, cosmic rays & astrophysics
- leave ample space for discussion, over more days even on same topics
 - time to think, time to ask and discuss twice, time to elaborate
 - opportunity to learn and develop new ideas
- stimulate active interactions among all participants
- experimentalists and theorists together

Goals and scientific programme



1) Initial state and ultraperipheral

Conveners: Jesus Guillermo Contrera Nuno (Prague, CTU), Petja Paakinen (Jyväskylä U.), Thomas Boettcher (Cincinnati U.)

2) Jet production and properties in pp and in the medium

Conveners: Alba Soto Ontoso (CERN), Leticia Cunqueiro Mendez (Rome U., INFN), Martin Spousta (Charles U.)

3) Event properties and hydro in small and large systems

Conveners: Aleksas Mazeliauskas (U. Heidelberg, ITP), David Chinellato (Estadual de Campinas U., IFGW), Lucia Oliva (Catania U. and INFN)

4) Hadronization of light and heavy flavour across collision systems

Conveners: Anton Andronic (Darmstadt, GSI), Jing Wang (MIT), Peter Skands (Monash U.), Vincenzo Greco (Catania U. and INFN)

5) Energy loss and transport in the medium and in small systems

Conveners: Andrea Dainese (INFN Padova), Andreas Morsch (CERN), Francesco Prino (INFN Turin)

6) QCD and astrophysics

Conveners: Hans Dembinski (Dortmund U.), Ramona Lea (Brescia U., INFN), Saverio Mariani (CERN)

Thanks to all conveners for the effort already done!

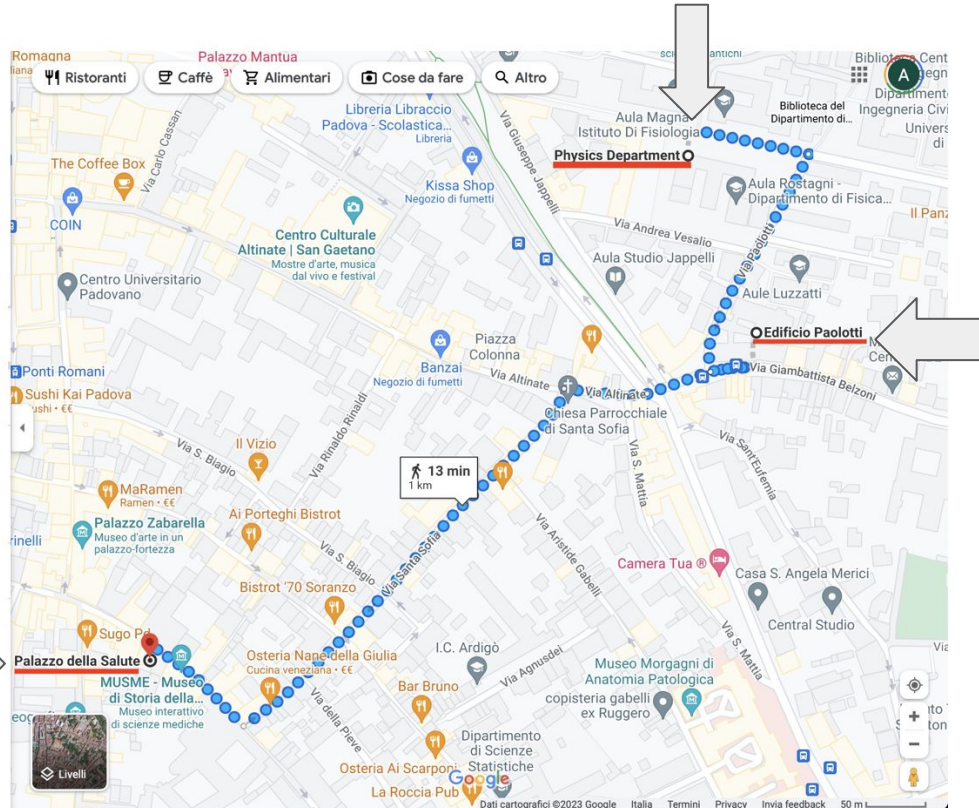
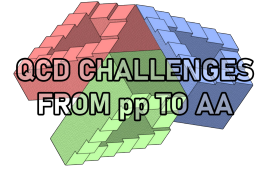
Timetable: overview

Monday	Tuesday	Wednesday		Thursday	Friday
	08:50 Round Tables	09:00 Plenary		09:00 (Joint) Round Tables	09:00 Plenary
	12:30	12:30		12:30	12:45
13:30	Lunch (free)	Lunch (free)		Lunch (free)	
Plenary	14:00 Plenary	14:00 Joint Round Tables	14:00 Round Tables	14:00 (Joint) Round Tables	
	17:00			17:15	
18:30		18:30	18:30	17:30 Visit to Physics Museum	
19:30 Welcome cocktail					
	20:00 CLASH pizza	20:00 Social dinner			

Three locations

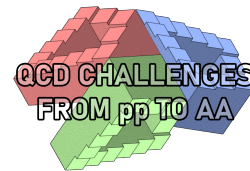
Palazzo della Salute: where we are now, plenary sessions, joint round tables

Physics Department, main building:
round tables of tracks 2-3-6



Edificio Paolotti
(second building of P. Department, 150 m from main one):
round tables of tracks 1-4-5

Tuesday round tables: meeting point



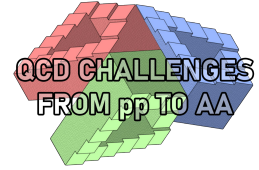
- We are going to meet tomorrow at 8:50 am in front of the Physics Department: [via Marzolo n. 8](#)
- Local people will accompany you to the round tables room
- There are arrows around the department that help you finding the rooms
- **The end time of round tables is not strict:** feel free to finish earlier if you need more time for lunch

Tue 14/02

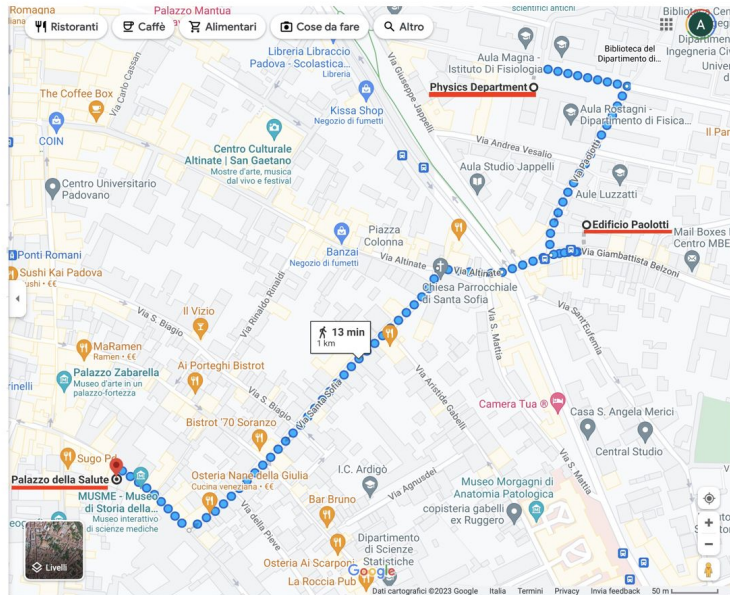
09:00	Round tables (9)	
10:00	Padova, Italy	09:00 - 10:30
	Coffee break (in round-table rooms)	
	Padova, Italy	10:30 - 11:00
11:00	Round tables (9)	
12:00	Padova, Italy	11:00 - 12:30



Tuesday: from round tables to plenaries



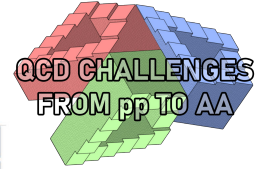
- You will have time to walk around the city for **free lunch** from 12:30 to 14:00
- After lunch we are going to restart the plenaries at the Palazzo della Salute



Lunch break		
13:00		
	Padova, Italy	12:30 - 14:00
14:00	Current understanding of small-x physics and future perspectives	Cesar Luiz Da Silva
	Padova, Italy	14:00 - 14:30
	Overview of recent experimental results on ultraperipheral collisions	Adam Matyja
	Padova, Italy	14:30 - 15:00
15:00	Challenges in connecting GPDs to PDFs via exclusive heavy vector meson photoproduction in UPCs	Chris Flett
	Padova, Italy	15:30 - 16:00
16:00	Experimental overview of exotic hadrons	Lorenzo Capriotti
	Padova, Italy	16:00 - 16:30
	Theory overview of exotic hadrons - their structure and production in heavy ion collisions	Su Hsiung Lee
	Padova, Italy	16:30 - 17:00
17:00		

CLASH Pizza in the evening!

Wednesday: joint round tables

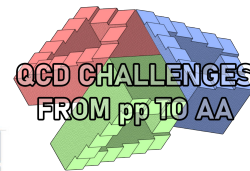


- Morning: plenary at the Palazzo della Salute
- First joint round table (tracks 1-3-6) at the Palazzo della Salute 14:00 to 16:00
- At the same time the other groups can have their round tables at the Physics Department
- All the groups will meet together at the Palazzo della Salute at 16:00 for the coffee break (**consider time for moving from the Department**)

Please prepare in advance questions/topics for the joint round tables

09:00	Correlations and collectivity at LHCb <i>Padova, Italy</i>	Jiayin Sun 09:00 - 09:22
	Interplay between equilibrated and non-equilibrated components with dynamical initialization framework <i>Yuka Kanakubo</i>	
10:00	Insights into the evolution of hadronic collisions with flow observables <i>Padova, Italy</i>	Dr Vytautas Viskavicius 09:44 - 10:06
	EPOS4: a full general purpose event generator to do multi-observable analysis <i>Padova, Italy</i>	Klaus WERNER 10:06 - 10:28
	Coffee break <i>Padova, Italy</i>	10:30 - 11:00
11:00	Heavy-flavour production, energy loss, and flow in large and small collision systems <i>Padova, Italy</i>	Andre Govinda Stahl Leiton 11:00 - 11:22
	High-pt particle production, correlations, and observables sensitive to energy loss in small (and large) collisions <i>Dong Jo Kim</i>	
12:00	Heavy quark transport and energy loss <i>Padova, Italy</i>	Salvatore Plumari 11:44 - 12:06
	In-medium parton energy loss in small and large collision systems <i>Padova, Italy</i>	Carolina Andres 12:06 - 12:28
	Lunch break (free) <i>Padova, Italy</i>	12:30 - 14:00
14:00	Round tables: Joint Round Tables (9)	
15:00		
16:00	coffee break <i>Padova, Italy</i>	14:00 - 16:00 16:00 - 16:30
17:00	Round tables: Joint Round Tables (9)	
18:00		
	<i>Padova, Italy</i>	16:30 - 18:30

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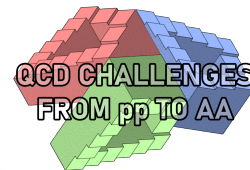


- Second joint round table (tracks 2-4-5) at the Palazzo della Salute 16:30 to 18:00
- At the same time the other groups can have their round tables at the Physics Department
- **Social dinner in the evening!**

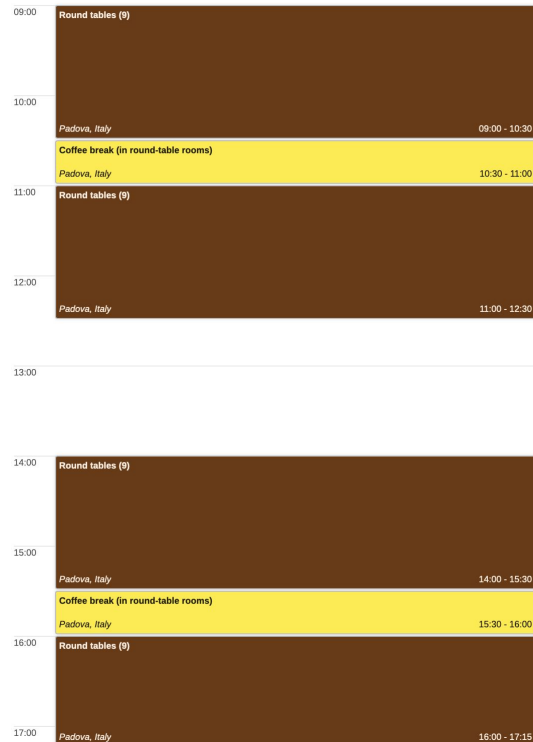
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17:00		
18:00		

Thursday round tables

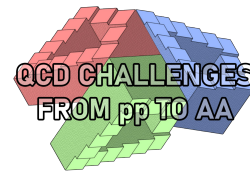
- Meeting point at 9:00 in front of the Physics Department, we will stay there for the rest of the day
- **If you are interested, we can organize extra joint round table sessions just send us your proposals**
 - **Prefer the morning: part of the afternoon will have to be dedicated to the preparation of the final recap talks**
- Guided visits to the Physics Museum at 17:30



Thu 16/02



Friday: final day

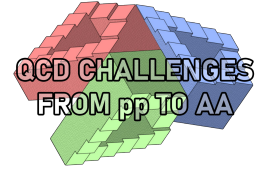


- Recap presentations at the Palazzo della Salute
- One convener per track will give the group presentation
- Some discussion time has been allocated
- Proceedings in the form of a single workshop paper

Fri 17/02

09:00	Final recap (11)	
10:00	<i>Padova, Italy</i>	09:00 - 10:15
	Discussion	
	<i>Padova, Italy</i>	10:15 - 10:30
	Coffee break	
	<i>Padova, Italy</i>	10:30 - 11:00
11:00	Final recap (11)	
12:00	<i>Padova, Italy</i>	11:00 - 12:15
	Discussion	
	<i>Padova, Italy</i>	12:15 - 12:30
	Conclusions	
	<i>Padova, Italy</i>	12:30 - 12:35

Today: welcome cocktail



- We are very glad to invite you at the welcome cocktail in the historical [Caffè Pedrocchi](#)
- After the plenary session, at 19:30 time
- 4 minutes by walk from the Palazzo della Salute

