

# Modern Techniques for Hadron Spectroscopy

Sergi Gonzalez-Solis, Mikhail Mikhasenko,  
Alessandro Pilloni, Arkaitz Rodas Bilbao

RUB 15.07.2024

# Bochum in North Rhine Westfalen

- Used to be Europe's largest urban area
  - coal mining and steel production
  - last mine is closed in 90<sup>th</sup>
- Transitioned to technological and academic hub
- Cultural Diversity



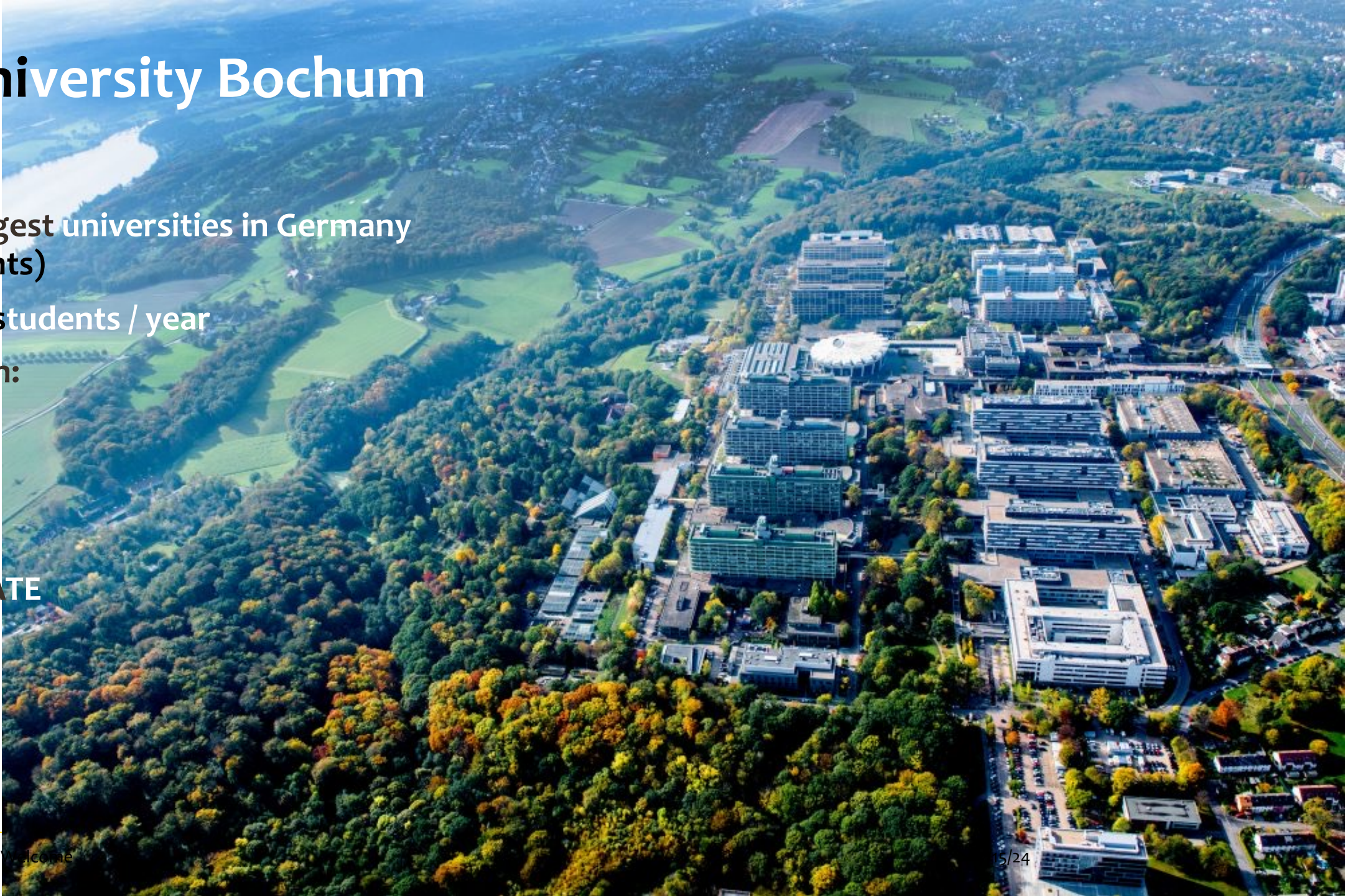
# Ruhr University Bochum

One of 10 largest universities in Germany  
(~ 40k students)

Physics: ~80 students / year

Specialization:

- HADRON,
- ASTRO,
- PLASMA,
- SOLID STATE



# Modern Techniques in Hadron Spectroscopy

2024  
July  
15-26

<https://indico.gsi.de/event/19202/>

## Event Organizers

SERGI GONZALEZ-SOLIS, University of Barcelona  
MIKHAIL MIKHASENKO, Ruhr University Bochum  
ALESSANDRO PILLONI, University of Messina  
ARKAITZ RODAS, Old Dominion University

## Local Support

DANIELA KLOBES, Ruhr University Bochum  
CLAUDIUS SCHNIER, Ruhr University Bochum

## Supporting Organizations



Ruhr University Bochum



ExoHad Collaboration, Indiana University



NRW-FAIR Network



University of Giessen, Helmholtz Forschungsakademie Hessen für FAIR



Jefferson Laboratory



Joint Physics Analysis Center



Indiana University


# Physics Program

- Morning:  
Lecture (2h+2h)


- Afternoon:  
hands-on sessions (2h)  
+ a seminar / flash talks

- Lectures on Saturday,  
Sunday is free

- Slides attached,  
Audio / black-board Transcripts






- Overview
- Campus Navigation
- Venue
- Accommodation
- Social events
- Timetable** 
- Contribution List
- My Conference
- My Contributions
- Registration
- Participant List
- List of lecturers


Contact


 [hadronschool@rub.de](mailto:hadronschool@rub.de)

## Timetable


< **Mon 15/07** Tue 16/07 Wed 17/07 Thu 18/07 Fri 19/07 Sat 20/07 Sun 21/07 Mon 22/07 >


 Print  PDF  Full screen ** Detailed view**  Filter

 Session legend

Arrival/Reception  Exercises/Practicum: Lattice QCD  Lectures: Lattice QCD  Student flash talks 

09:00


**Welcome to the MTHS school** *Mikhail Mikheyenko*   
09:30 - 09:45

**Lattice QCD** *Prof. John Bulava*   
09:45 - 10:30

10:00

**Coffee break**  
10:30 - 11:00

11:00

**Lattice QCD** *Prof. John Bulava*   
11:00 - 11:45

**Lattice QCD** *Prof. John Bulava*  
11:45 - 12:30

12:00

**Lunch**

# Flash talks (Monday and Wednesday)

2 slides from each participant:

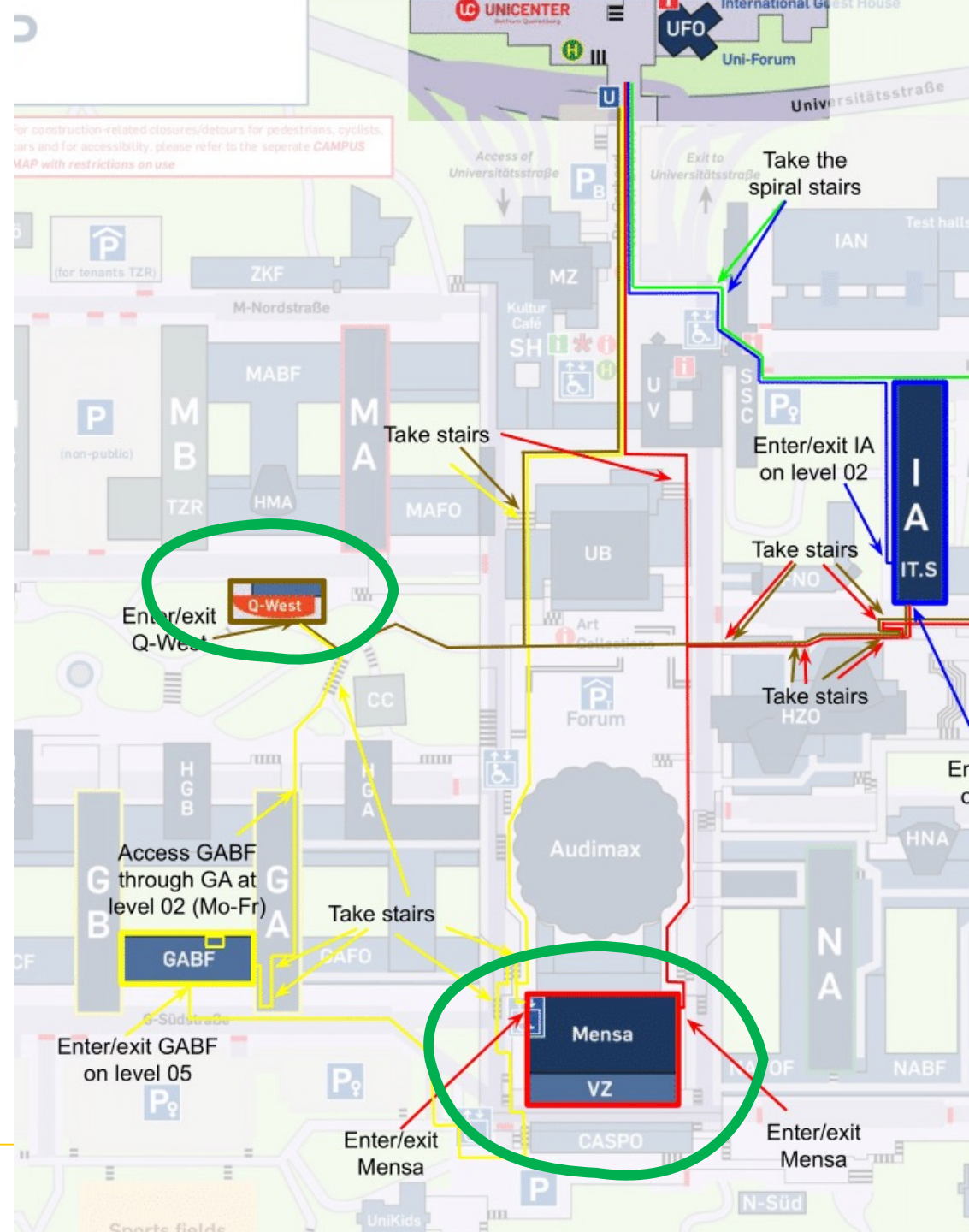
1. Name + Affiliation + research topic
2. What you like beyond physics

Split into 2 groups for **Mo (P:Z)** and **We (A:M)**.



# Lunches and dinning places

- Many dinning options in the campus (main: Q-West, Mensa, Rote Bete)
- Cannot pay cash (credit card or AKAFÖ card)
- You are provided with the AKAFÖ card, charged with 80EUR (8EUR / day)
- 5EUR deposit for the card



# Getting around in the campus



- Overview
- Campus Navigation**
- Venue
- Accommodation
- Social events
- Timetable
- Contribution List
- My Conference
- My Contributions
- Registration
- Participant List
- List of lecturers

Contact

✉ [hadronscool@rub.de](mailto:hadronscool@rub.de)

## Campus Navigation



Different rooms are used for lectures along the school weeks. Due to the challenging layout of the campus, the maps below give tips on moving across the buildings.

Seminar rooms are labelled with a name of the building (e.g. IA, IB), number for the floor level, and the room number after a slash.

Generally, the floors are numbered as 05, 04, 03, 02, 01, 0, 1, 2, 3, 4, 5. The exact set of the levels might differ across the campus buildings.

By clicking on the links in the table below, one can find the pictured path to the corresponding rooms:

14.07.24 (Sun)	<a href="#">GABF 04/511</a>		
<b>Week 1</b>	<b>Room</b>	<b>Week 2</b>	<b>Room</b>
15.07.24 (Mon)	<a href="#">IA 02/460</a>	22.07.24 (Mon)	<a href="#">ID 03/411</a>
16.07.24 (Tue)	<a href="#">ID 03/653</a>	23.07.24 (Tue)	<a href="#">ID 03/411</a>
17.07.24 (Wed)	<a href="#">ID 04/653</a>	24.07.24 (Wed)	<a href="#">ID 03/411</a>
18.07.24 (Thu)	<a href="#">ID 04/445</a>	25.07.24 (Thu)	<a href="#">ID 03/411</a>
19.07.24 (Fri)	<a href="#">ID 03/445</a>	26.07.24 (Fri)	<a href="#">ID 03/411</a>
20.07.24 (Sat)	<a href="#">GABF 04/511</a>		
21.07.24 (Sun)			





# Around the campus

- Overview
  - Campus Navigation
  - Venue**
  - Accommodation
  - Social events
  - Timetable
  - Contribution List
  - My Conference
    - My Contributions
  - Registration
  - Participant List
  - List of lecturers
- Contact
- ✉ [hadronschool@rub.de](mailto:hadronschool@rub.de)

## Venue

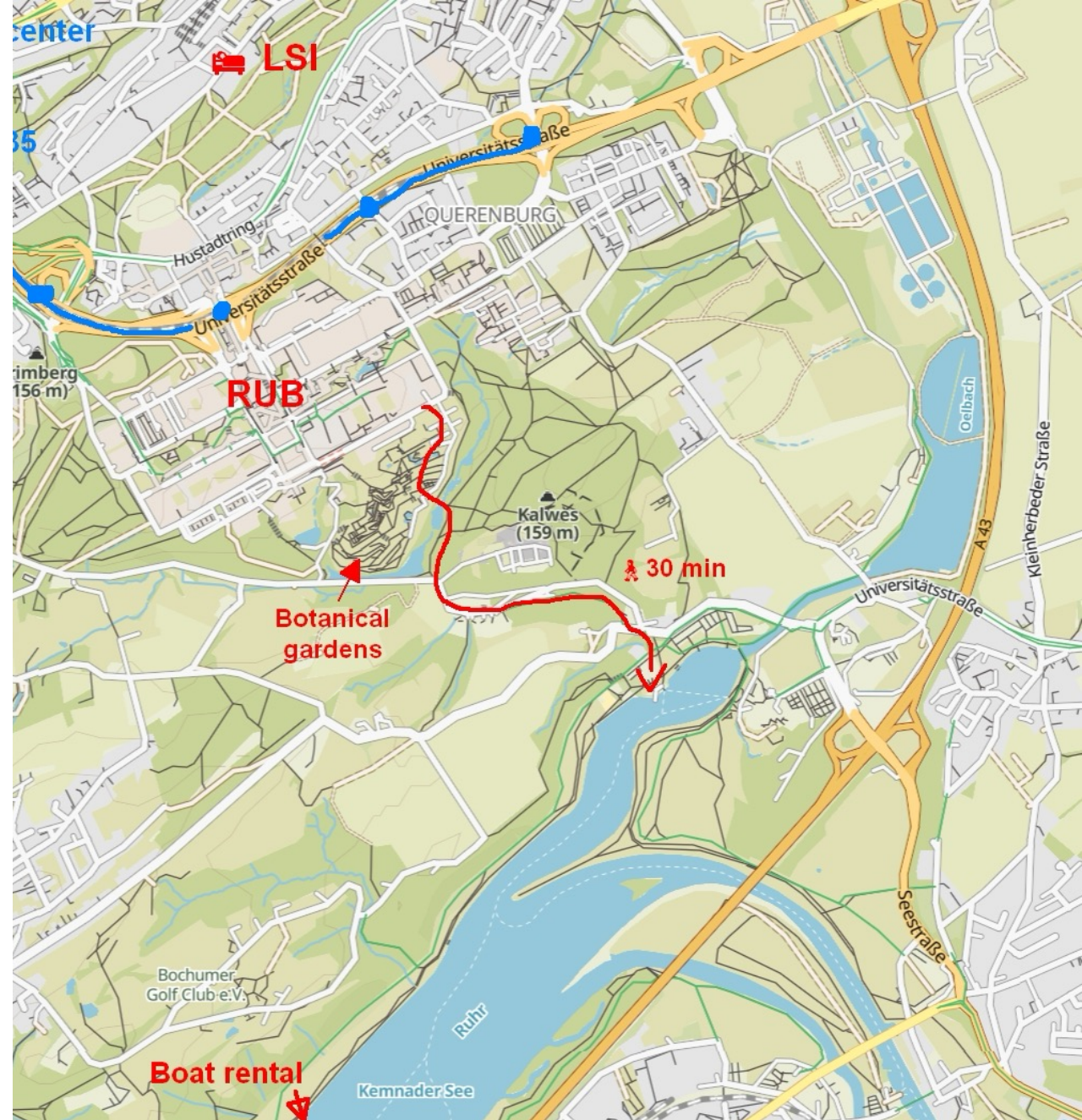
The summer school for hadron physics will take place on the **Ruhr University Bochum campus**, situated in the dynamic city of **Bochum, Germany**. The campus is reached from Bochum city center by a direct tram line within 20 minutes. The campus is distinguished by its efficient layout, memorable brutal architecture, and contemporary facilities, including the modern Mensa building that offers a wide range of dining options.



The venue is further enhanced by its extensive green spaces, including a park and the attached Botanic Garden, offering vast areas for leisure exploration and sporting activities. Within this setting, the **Chinese Garden** stands out as a highlight, being one of the most authentic Chinese gardens outside Asia.

## Extended list of attractions

An extended list of suggestions to the school participants was prepared by locals ([pdf tagged on Friday 12/07](#)).



# More material

The third school by [JPAC](#)

[\(Link to the previous schools\)](#)

## International Summer Schools on Reaction Theory 2015 & 2017 editions

### TABLE OF CONTENTS

Contact **Vincent Mathieu** ([mathieuv.at.indiana.edu](mailto:mathieuv.at.indiana.edu)) for any questions about the content of this page.  
Return to the [JPAC home page](#).

Content of this page:

- [2017 lectures](#)
- [2017 seminars](#)
- [2015 seminars](#)
- [References](#)

