



Balkan Physical Union

WILHELM UND ELSE  
HERAEUS-STIFTUNG



**Balkan Physics Union – WE Heraeus School on  
Frontiers in Quantum Science and Technologies**

**July 04 – 08, 2025**

**Scientific organizers - German side**

**Gertrud Zwicknagl  
TU Braunschweig  
Braunschweig**

**Scientific organizers - BPU side**

**Radu Constantinescu  
University of Craiova  
Romania**

**Aurelian Isar  
National Institute of Physics and  
Nuclear Energy (NIPNE)  
Magurele  
Romania**

**Dumitru Chirlesan  
Politehnica University  
Bucharest  
Romania**

# Program BPU – WE Heraeus School

	<b>Friday 04 July</b>	<b>Saturday 05 July</b>	<b>Sunday 06 July</b>	<b>Monday 07 July</b>	<b>Tuesday 08 July</b>
09:00	<b>ARRIVAL</b>	LECTURE+ Discussion (90 + 15 min)	LECTURE+ Discussion (90 + 15 min)	LECTURE+ Discussion (90 + 15 min)	LECTURE+ Discussion (90 + 15 min)
10:00					
11:00		BREAK	BREAK	BREAK	BREAK
		LECTURE+ Discussion (60+15min)	LECTURE+ Discussion (60+15min)	LECTURE+ Discussion (60+15min)	LECTURE+ Discussion (60+15min)
12:00					
13:00		LUNCH	LUNCH	LUNCH	LUNCH
14:00		LECTURE+ Discussion (90+15min)	LECTURE+ Discussion (90+15min)	<b>EXCURSION Magurele</b>	<b>DEPARTURE</b>
15:00					
16:00		BREAK	BREAK		
		LECTURE+ Discussion (60+15min)	LECTURE+ Discussion (60+15min)		
17:00					
18:00		Poster Oral	Poster Oral		
19:00		POSTER SESSION	POSTER SESSION		
20:00		WELCOME DINNER	DINNER	DINNER	SOCIAL DINNER
21:00				<b>PANEL SESSION</b>	
22:00					
22:30					

### **LECTURES:**

The school will be organized with 12 lectures that will be followed by discussion. There will be 6 overview lectures of 1h45 (90 min lecture plus 15 min discussion) and 6 lectures of 1h15 (60 min lecture plus 15 min discussion) on more specialized topics.

### **POSTERS (oral and sessions):**

We expect up to 54 PhD students/postdocs. Each one of them will:

- Present one poster (during the 2 poster sessions)
- Advertise his/her poster with a short oral presentation using 1-2 slide (2 minutes per person)

### **PANEL DISCUSSION [Wednesday evening]:**

5 selected lecturers will animate a lively discussion about future scientific perspectives in the field.

### **OPEN DISCUSSION:**

will take place on an informal basis each day after lunch break

### **SOCIAL ACTIVITIES:**

In addition to the scientific program, we also plan social activities like an excursion to Magurele on Monday afternoon and a special dinner on Monday evening.

### Topics of lectures and preliminary list of speakers

We chose the 12 speakers among leading experts that are known to give good and pedagogical talks. Following the suggestions of the joint “Charter for Gender Fairness at Conferences” of SFP, CNRS, Femmes et Physique, and Femmes et Sciences, there are xx women among the invited speakers.

We invited the speakers by email emphasizing that we strongly encourage the speakers to stay during the entire week.

(\* confirmed speakers)

#### A. Main families of plat forms and materials

Ultra-cold quantum gases	90 min
<i>Tilman Pfau, Universität Stuttgart</i>	
New materials for the Quantum Age	60 min
<i>Petra Rudolf, U Groningen</i>	

#### B. Theoretical approaches, main concepts and novel methods

Quantum materials	90 min
<i>Jörg Schmalian, KIT Karlsruhe</i>	
Entanglement and quantum teleportation	90 min
<i>Aurelian Isar, U Bucharest</i>	
Quantum Machine Learning	90 min
<i>Florian Marquardt, MPI Erlangen</i>	
Quantum cosmology	60 min
<i>Mairi Sakellaradou</i>	
Quantum communication	60 min
<i>Radu Ioniciou</i>	

C. State of the art of experimental techniques

Quantum metrology	90 min
<i>Tanja Mehlstäubler PTB Braunschweig</i>	
Hands-on QM	90 min
<i>Christophe Rossel</i>	
Non-linear and quantum optics	60 min
<i>Luc Bergé</i>	
Quantum entanglement in high-energy physics	60 min
<i>Andreas Schopper</i>	
yyy	60 min
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