



Institute of Particle Physics and  
Accelerator Technologies

# 4<sup>th</sup> Baltic School of High-Energy Physics and Accelerator Technologies 2024

Kuldīga, Latvia, 5<sup>th</sup>-9<sup>th</sup> of August, 2024

Kārlis Dreimanis  
Riga Technical University

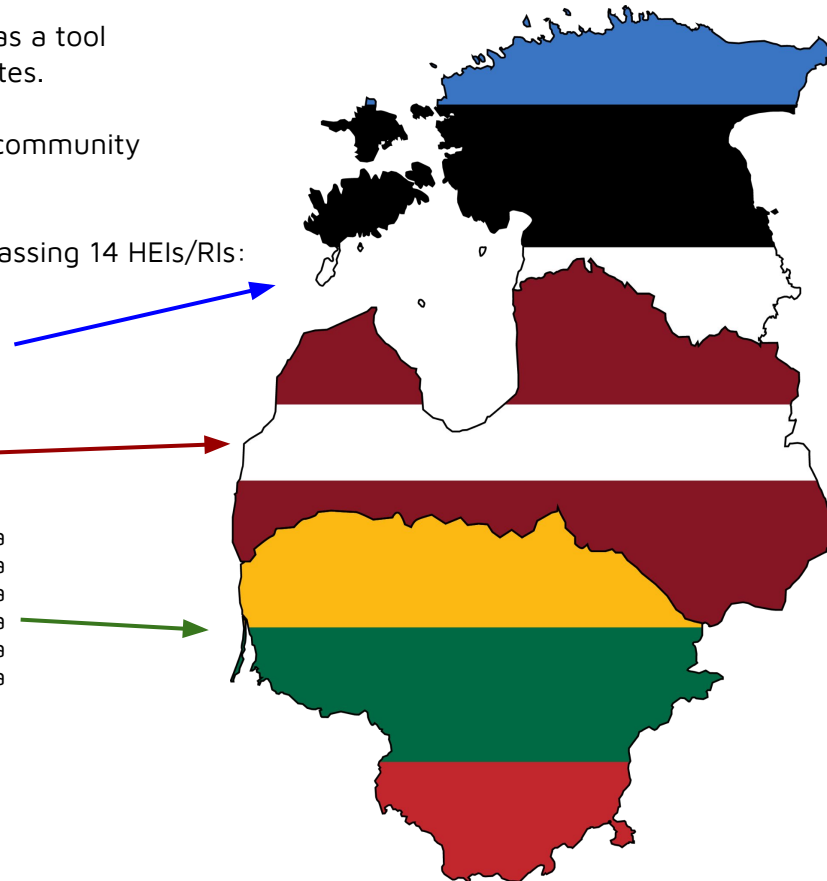
16.02.2024.



- [CERN Baltic Group](#) was officially established on the 28th of May, 2018, as a tool to enhance the scientific collaboration between CERN and the Baltic states.
- In particular, the aim of CBG is to grow and to strengthen the scientific community of HEP and accelerator physics and technologies in the region.
- Originally, started by a couple of HEIs/RIs from the region, now encompassing 14 HEIs/RIs:

- Tallinn University of Technology (TTU, TalTech),
- National Institute of Chemical Physics and Biophysics (NICPB),
- University of Tartu (UT),
- Riga Technical University (RTU),
- University of Latvia (UL),
- Riga Stradins University (RSU),
- Ventspils University of Applied Sciences (VU),
- Daugavpils University (DU),
- Vilnius University (VU),
- Kaunas University of Technology (KTU),
- Vytautas Magnus University (VMU),
- Lithuanian Energy Institute (LEI),
- Lithuanian University of Health Sciences (LUHS),
- National Cancer Institute (NCI),

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- Since 2021, CBG have organised two annual events to promote HEP and accelerator research in the region, rotating each of the events through the three countries:
  - CERN Baltic Conference (CBC):
    - [1st CBC](#), Tartu, Estonia [remote only];
    - [2nd CBC](#), Vilnius, Lithuania;
    - [3rd CBC](#), Riga, Latvia.
  - Baltic School of High-Energy Physics and Accelerator Technologies (BSHEPAT):
    - [1st BSHEPAT](#), Klapkalnciems, Latvia;
    - [2nd BSHEPAT](#), Kuressaare, Estonia;
    - [3rd BSHEPAT](#), Palanga, Lithuania;
    - 4th BSHEPAT, Kuldīga, Latvia.



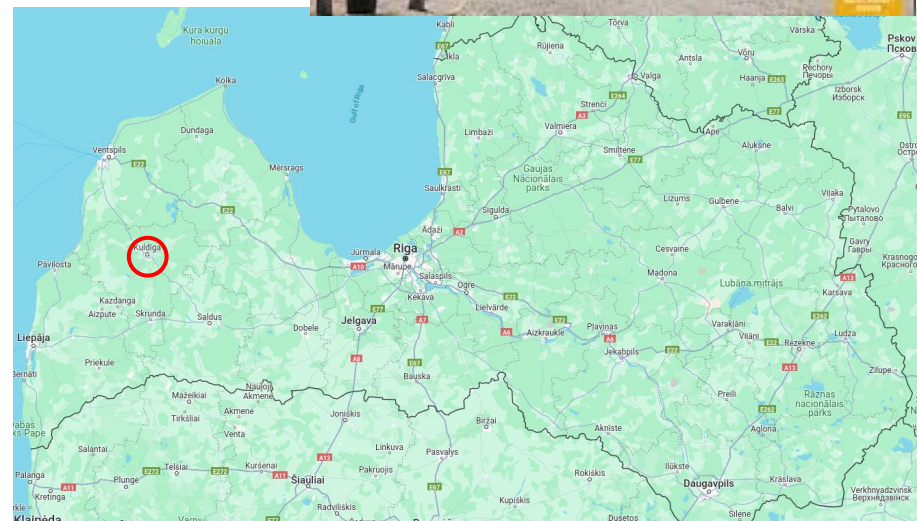
- COST Action 22130: COverprehensive Multi-boson Experiment-Theory Action (COMETA) is a *new* CA, which was initiated on 18/09/2023 and is currently scheduled to run until 17/09/2027.
- There are 23 participating countries, including Latvia (Kārlis Dreimanis, RTU) and Estonia (Torben Lange, NICPB); Lithuania is not represented at the moment (but we hope to change this in due course).
- COMETA has five working groups, covering **three** interlinked scientific directions:
  - **WG1**: Theoretical framework, precision calculations and simulation (Giovanni Pelliccioli; Ramona Groeber);
  - **WG2**: Technological innovation in data analysis (Alessandra Cappati; Riccardo Finotello; Claudius Krause);
  - **WG3**: Experimental measurements (Valentina Maria Martina Cairo; Matteo Presilla);
  - **WG4**: Management and event organization (Arnaud Ferrari; Pietro Govoni);
  - **WG5**: Inclusiveness and Outreach (Flavia de Almeida Dias; Kārlis Dreimanis);
  - **Action chair**: Ilaria Brivio; **action vice-chair**: Karolos Potamianos.
- Events co-organised by COMETA, obviously, must have at least strong partial focus on the scientific directions of the action !



- BSHEPAT is a week long school, with a hope to extend it to a two-week event in the future (duration is almost entirely a funding-limited issue).
- The roles of BSHEPAT is to:
  - (a) Promote high-energy physics and accelerator physics & technology research in the Baltic states;
  - (b) Act as a teaching and networking tool for the local students;
  - (c) Act as a promotion tool of the local groups by attracting international students;
  - (d) Act as a political tool for promoting the Baltic states' cooperation with CERN.
- Typically, BSHEPAT attracts ~30 students, with a ratio of Baltic/other students between 1/3 and 1/2.
- First-order constraints for BSHEPAT'24:
  - BSHEPAT'24 must retain both particle physics topics and accelerator physics, technologies and applications topics.
  - The support from COMETA requires that an additional focus is put onto the scientific topics of the action, but this being the first school of the action, a more basic/broad introductory HEP theory topics can still be covered.
  - An invitation has been extended to some lecturers prior to today.

- Current scientific committee for BSHEPAT'24 (counting responses from the CBG colleagues):
  - COMETA core-group (to be expanded in the promotional materials);
  - Toms Torims (RTU);
  - Christoph Scheafer (CERN);
  - Maurizio Vretenar (CERN);
  - Erika Korobeinikova (LSMU);
  - Brigita Abakevičienė (KTU);
  - Fjodor Sergejev (TTU, TalTech);
  - Jevgenijs Proskurins (RSU);
  - Aurelijus Rinkevičius (VU);
  - Gediminas Stankunas (LEI);

- BSHEPAT'24 will take place in Kuldīga, on the week of 5th-9th of August, 2024.
- We have identified (and pre-booked) accommodation and the venue.
- Approximate (optimistic) total event cost: ~25 kEUR;
- Support from CA22130 - COMETA:
  - Local Organiser Support: 3.5 kEUR;
  - Participant (trainer and trainee) support: 21.5 kEUR;
  - **NB!** A minimum of around 10.0 kEUR will go directly to the participant costs.
- Current daily allowance set at 80 Eur;
- We will provide everything, but the evening meals (except the school dinner);
- Propose reducing DA to 70 Eur;





# BSHEPAT'24 - programme

- Current draft programme (following initial discussions):

- 17x 90-minute lecture blocks; (lecturer's choice on 1x90 or 2x40, with a 10 min break);
- 1x 60 minute keynote / general / offtopic talk;
- 1x school dinner;
- 1x excursion (potentially Irbene radio-telescope);
- 1x outreach event promoting HEP & COMETA;

1	QFT	2 x 90	4 x 40	160-180 minutes	2.7-3.0 hours
2	SM	2 x 90	4 x 40	160-180 minutes	2.7-3.0 hours
3	[SM]EFT	2 x 90	4 x 40	160-180 minutes	2.7-3.0 hours
4	PHENOM.	2 x 90	4 x 40	160-180 minutes	2.7-3.0 hours
5	HEP EX.	2 x 90	4 x 40	160-180 minutes	2.7-3.0 hours
6	HEP ML	2 x 90	4 x 40	160-180 minutes	2.7-3.0 hours
7	ACC. PHYSICS	2 x 90	4 x 40	160-180 minutes	2.7-3.0 hours
8	FUTURE ACC.	1 x 90	2 x 40	80-90 minutes	1.3-1.5 hours
9	ACC. APP.	2 x 90	4 x 40	160-180 minutes	2.7-3.0 hours
10	Keynote talk	1 x 60	1 x 60	60 minutes	1.0 hours
		Total (minutes):		1360-1530	
		Total (hours):		23-25.5	

	Sunday, 04.08.	Monday 05.08.	Tuesday, 06.08.	Wednesday, 07.08.	Thursday, 08.08.	Friday, 09.08.
0800	0815	Organised bus to Kuldiga, Arrival and Registration II	Breakfast / free time	Breakfast / free time	Breakfast / free time	Breakfast / free time / checkout
0815	0830					
0830	0845					
0845	0900					
0900	0915					
0915	0930					
0930	0945					
0945	1000					
1000	1015					
1015	1030					
1030	1045	Break	Break	LB XII (HEP EX. I)	LB XVI (ACCELERATOR APPLICATIONS I)	
1045	1100					
1100	1115	Introduction	LB V (SM I)	LB IX (FUTURE ACCELERATORS)	Break	Coffee break, light snacks
1115	1130					
1130	1145	LB I (QFT)	Lunch	Lunch	LB XIII (HEP EX. II)	LB XVII (ACCELERATOR APPLICATIONS II)
1145	1200					
1200	1215	Lunch	Lunch	Lunch	Lunch	Close
1215	1230					
1230	1245	LB II (QFT)	LB VI (SM II)	LB X (PHENOM. I)	LB XIV (HEP ML I)	Organised bus to Riga
1245	1300					
1300	1315	Coffee break	Coffee break	Coffee break	Coffee break	Departure from Riga
1315	1330					
1330	1345	LB III (ACCELERATOR PHYSICS I)	LB VII ([SM]EFT I)	LB XI (PHENOM II)	LB XV (HEP ML II)	Free time / Enjoy Kuldiga
1345	1400					
1400	1415	Free time	Excursion around Kuldiga / Ventas rumba / Sandstone caves / Irbene radiotelescope [TBD]	Keynote	Free time	Free time / Enjoy Kuldiga
1415	1430					
1430	1445	Outreach event / COMETA advert / HEP advert [cont'd arrival to Riga by participants]	Free time / Informal gathering in a local pub/bar	Free time	Free time	Free time / Enjoy Kuldiga
1445	1500					
1500	1515	Arrival to Riga	Free time	Free time / Enjoy Kuldiga	School dinner	Free time / Enjoy Kuldiga
1515	1530					
1530	1545	Free time	Free time	Free time	Free time	Free time / Enjoy Kuldiga
1545	1600					
1600	1615	Free time	Free time	Free time	Free time	Free time / Enjoy Kuldiga
1615	1630					
1630	1645	Free time	Free time	Free time	Free time	Free time / Enjoy Kuldiga
1645	1700					
1700	1715	Free time	Free time	Free time	Free time	Free time / Enjoy Kuldiga
1715	1730					
1730	1745	Free time	Free time	Free time	Free time	Free time / Enjoy Kuldiga
1745	1800					
1800	1815	Free time	Free time	Free time	Free time	Free time / Enjoy Kuldiga
1815	1830					
1830	1845	Free time	Free time	Free time	Free time	Free time / Enjoy Kuldiga
1845	1900					
1900	1915	Free time	Free time	Free time	Free time	Free time / Enjoy Kuldiga
1915	1930					
1930	1945	Free time	Free time	Free time	Free time	Free time / Enjoy Kuldiga
1945	2000					
2000	2015	Free time	Free time	Free time	Free time	Free time / Enjoy Kuldiga
2015	2030					
2030	2045	Free time	Free time	Free time	Free time	Free time / Enjoy Kuldiga
2045	2100					
2100	2115	Free time	Free time	Free time	Free time	Free time / Enjoy Kuldiga
2115	2130					





1	QFT	2 x 90	4 x 40	160-180 minutes	2.7-3.0 hours	<b>John Ellis</b>
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4	PHENOM.	2 x 90	4 x 40	160-180 minutes	2.7-3.0 hours	<b>Giulia Zanderighi</b>
5	HEP EX.	2 x 90	4 x 40	160-180 minutes	2.7-3.0 hours	<b>Klaus Desch</b>
6	HEP ML	2 x 90	4 x 40	160-180 minutes	2.7-3.0 hours	<b>Lydia Brenner</b>
7	ACC. PHYSICS	2 x 90	4 x 40	160-180 minutes	2.7-3.0 hours	<b>Maurizio Vretenar</b>
8	FUTURE ACC.	1 x 90	2 x 40	80-90 minutes	1.3-1.5 hours	<b>Leonid Rivkin</b>
						<b>Maurizio Vretenar / Leonid Rivkin</b>
9	ACC. APP.	2 x 90	4 x 40	160-180 minutes	2.7-3.0 hours	
10	Keynote talk	1 x 60	1 x 60	60 minutes	1.0 hours	<b>Yuri Dokshitser</b>
		Total (minutes):		1360-1530		
		Total (hours):		23-25.5		

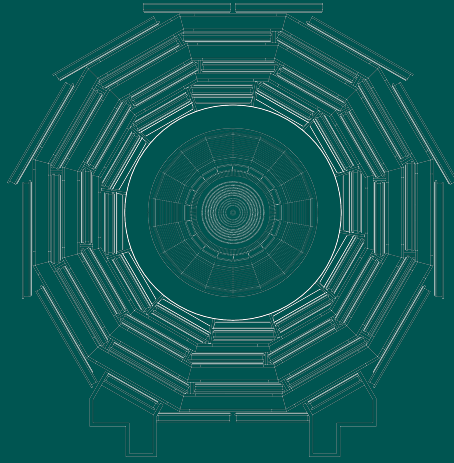
- Number of lecturers: 8

1	QFT	2 x 90	4 x 40	160-180 minutes	2.7-3.0 hours	<b>John Ellis</b>
2	SM	2 x 90	4 x 40	160-180 minutes	2.7-3.0 hours	<b>Mark Thomson</b>
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10	Keynote talk	1 x 60	1 x 60	60 minutes	1.0 hours	<b>Yuri Dokshitser</b>
		Total (minutes):		1360-1530		
		Total (hours):		23-25.5		

- Number of lecturers: 9

1	QFT	2 x 90	4 x 40	160-180 minutes	2.7-3.0 hours	<b>Yuri Dokshitser</b>
2	SM	2 x 90	4 x 40	160-180 minutes	2.7-3.0 hours	<b>John Ellis</b>
3	[SM]EFT	2 x 90	4 x 40	160-180 minutes	2.7-3.0 hours	<b>Ilaria Brivio</b>
4	PHENOM.	2 x 90	4 x 40	160-180 minutes	2.7-3.0 hours	<b>Giulia Zanderighi</b>
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8	FUTURE ACC.	1 x 90	2 x 40	80-90 minutes	1.3-1.5 hours	<b>Leonid Rivkin</b>
						<b>Maurizio Vretenar / Leonid Rivkin</b>
9	ACC. APP.	2 x 90	4 x 40	160-180 minutes	2.7-3.0 hours	<b>Rivkin</b>
10	Keynote talk	1 x 60	1 x 60	60 minutes	1.0 hours	<b>Mark Thomson</b>
		Total (minutes):		1360-1530		
		Total (hours):		23-25.5		

- Number of lecturers: 9



Thank you