



Report of the 3rd CERN Baltic Group School of High-Energy Physics and Accelerator Technologies

2023 7 – 11 August
Palanga, Lithuania

12th CERN Baltic Group General meeting, October 12, 2023, Riga



Venue

Hotel “Gabija”

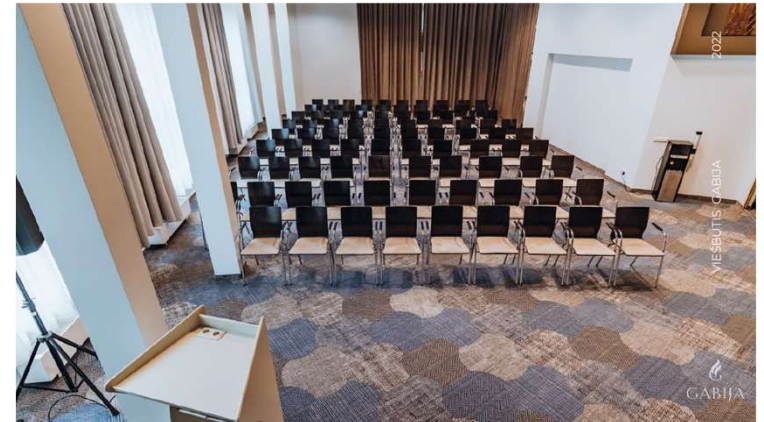
Vytauto g.40 / S. Dariaus ir S. Girėno g. 2,

<https://www.gabija.lt/en/>

Palanga, LITHUANIA

Distance to Palanga center 750 m,

Distance to the Beach 500 m





TOPICS:

Quantum field theory
Quantum chromodynamics and electrodynamics
Standard model physics and beyond
Collider physics and precision physics at the LHC
Accelerator technologies and applications
Application of accelerators in medicine /
Interface between machine and patient

<https://indico.cern.ch/event/1249205/page/28522-topics-and-areas>



SCIENTIFIC COMMITTEE:

Dr. Maurizio Vretenar (CERN)
Prof. Christoph Schäfer (CERN)
Prof. Toms Torims (RTU, LV)
Prof. Mārcis Auziņš (UL, LV)
Prof. Kārlis Dreimanis (RTU, LV)
Dr. Jevgenijs Proskurins (RSU, LV)

Dr. Aleksejs Klokovs (VIRAC, LV)
Dr. Uldis Valainis (DU, LV)
Prof. Fjodor Sergejev (TalTech, EE)
Prof. Veronika Zadin (UT, EE)
Prof. Mario Kadastik (NICPB, EE)
Dr. Erki Kärber (TalTech, EE)

Dr. Brigita Abakevičienė (KTU, LT)
Dr. Aurelijus Rinkevičius (VU, LT)
Dr. Erika Korobeinikova (LSMU, LT)
Dr. Augustinas Stepšys (VDU, LT)
Dr. Gediminas Stankūnas (LEI, LT)



Organizers



**CERN
Baltic Group**



**UNIVERSITY
OF LATVIA**



**RĪGA STRADIŅŠ
UNIVERSITY**



**Vilnius
University**



**LITHUANIAN
ENERGY
INSTITUTE**



**LITHUANIAN UNIVERSITY
OF HEALTH SCIENCES**





Registration

IEVA



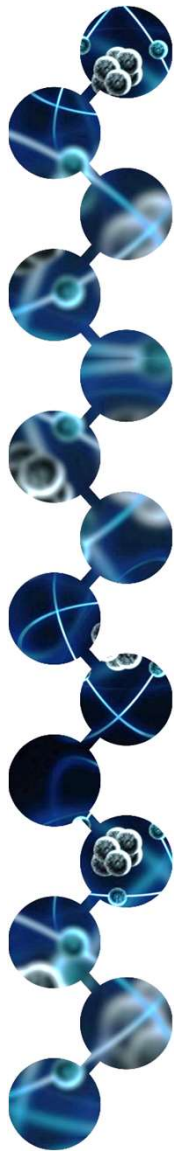
ERIKA



UGNĖ



VIRGINIJA



Programme for the CBG School, 2023

August 7 (Monday)			August 8 (Tuesday)	August 9 (Wednesday)	August 10 (Thursday)	August 11 (Friday)
		8:00 - 9:20	Breakfast at the hotel	Breakfast at the hotel	Breakfast at the hotel	Breakfast at the hotel
		9:20 - 10:20	Prof. Yuval Grossman, "Model building"	Prof. Yuri Dokshitzer, "QFT and high energies - PART I"	Prof. Yuri Dokshitzer, "QFT and high energies - PART II"	Prof. Yuri Dokshitzer, "QFT and high energies - PART III"
		10:20 - 10:40	Discussion + Coffee break	Discussion + Coffee break	Discussion + Coffee break	Discussion + Coffee break
12:00 - 13:00	Registration	10:40 - 11:40	Prof. Jonathan Ellis	Prof. Yuval Grossman, "The Standard Model"	Prof. Jonathan Ellis	Prof. Jonathan Ellis
13:00 - 13:25	Welcome by KTU, Dr. Leonas Balaševičius, Prof. Sigitas Tamulevičius	11:40 - 12:00	Discussion	Discussion	Discussion	Discussion + Closing remarks
13:25 - 13:55	Dr. Ants Koel, Evolution of CERN Baltic Group	12:00 - 13:00	Lunch break	Lunch break	Lunch break	Lunch break
13:55 - 14:15	Marijus Muralis, Presentation by Lithuanian Innovation Centre	13:00 - 14:00	Dr. Maurizio Vretenar, "Accelerators for society: health, environment, industry"	Dr. Aleksas Mazeliauskas, "High-Density QCD Physics with Proton and Heavy-Ion Beams - PART I"	Dr. Aleksas Mazeliauskas, "High-Density QCD Physics with Proton and Heavy-Ion Beams - PART II"	Free time
14:15 - 14:25	Discussion	14:00 - 14:20	Discussion	Discussion	Discussion	
14:25 - 15:15	Prof. Toms Torims, "Advanced Particle Therapy center for the Baltic states"	14:20 - 15:20	Prof. Joao Seco, "Overview of physics and biology in radiation therapy applications"	Prof. Tiziano Camporesi, "The birth of a modern Particle Physics Detector - PART II"	Prof. Leonid Rivkin, "Accelerator Science and Technology - PART II"	
15:15 - 15:45	Discussion + Coffee break	15:20 - 15:40	Discussion + Coffee break	Discussion + Coffee break	Discussion + Coffee break	
15:45 - 16:45	Dr. Maurizio Vretenar, "Introduction to particle accelerators: principles,"	15:40 - 16:40	Prof. Joao Seco, "Particle therapy in fighting cancer"	Prof. Leonid Rivkin, "Accelerator Science and Technology - PART I"	Dr. Kārlis Dreimanis, "Experimental particle physics at LHC"	
16:45 - 17:00	Discussion	16:40 - 17:00	Discussion	Discussion	Discussion	
17:00 - 18:00	Prof. Yuval Grossman, "A different way to look at QFT"	17:00 - 18:00	Prof. Tiziano Camporesi, "The birth of a modern Particle Physics Detector - PART I"	Free time	Free time	
18:00 - 18:20	Discussion	18:00 - 18:20	Discussion	Social event		
From 18:20	Free time	19:20 - 23:00	Welcome Party (Hotel Gabija Restaurant, Vytauto St. 40, Palanga)			



Lecturers

Prof. Jonathan Richard Ellis

Prof. Yuri Dokshitzer

Dr. Maurizio Vretenar



From 2nd CBS: Prof. Leonid Rivkin, Paul Scherrer Institute, Switzerland

Newcomers:

Prof. Kārlis Dreimanis (Ryga Technical University (RTU), Latvia)

Dr. Aleksas Mazeliauskas (Institute for Theoretical Physics, Heidelberg University, Germany)

Prof. Yuval Grossman (Cornell University, USA)

Prof. Joao Seco (Heidelberg Ion Beam Therapy Center, Germany)

Prof. Toms Torims (CERN, Ryga Technical University (RTU), Latvia)

Prof. Tiziano Camporesi (LIP, Portugal / Boston University, USA)

Lecture notes are available: <https://indico.cern.ch/event/1249205/timetable/#20230807>



Lecturers

10



4 invited guest



Participants 81



36 students

36 % LT

64 % foreigners:

 **13 %**

 **11 %**

Outstanding feedback by participants



A full financial support for student from Ukraine



We stand with Ukraine!



Welcome party !

**BALTIC SCHOOL OF
HIGH-ENERGY PHYSICS AND
ACCELERATOR TECHNOLOGIES
2023** August 7 – 11
Palanga, Lithuania

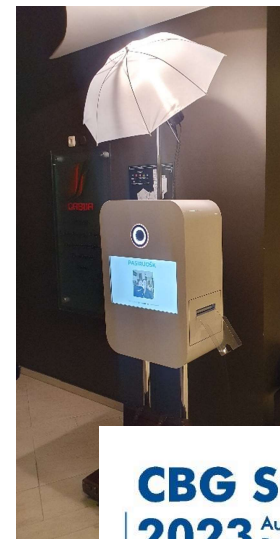
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**BALTIC GROUP
SCHOOL**

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Make a photo > Take a photo > Assemble the mosaic

Powered by PrintaPrint



CBG SCHOOL
2023 August 7–11
Palanga, LITHUANIA



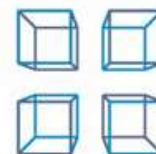


Burger party !



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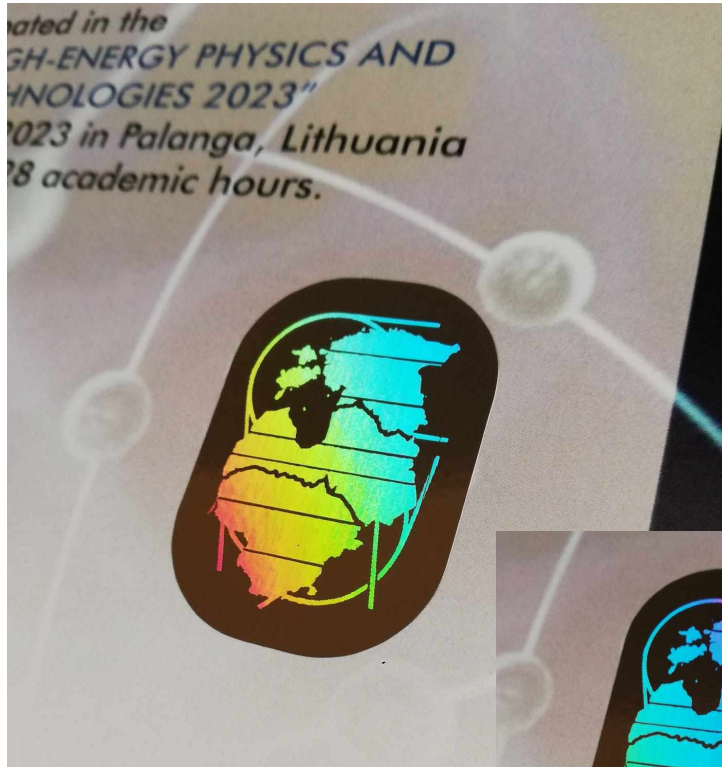
Social event

Tour: "Palanga - Las Vegas of Lithuania"





Certificate

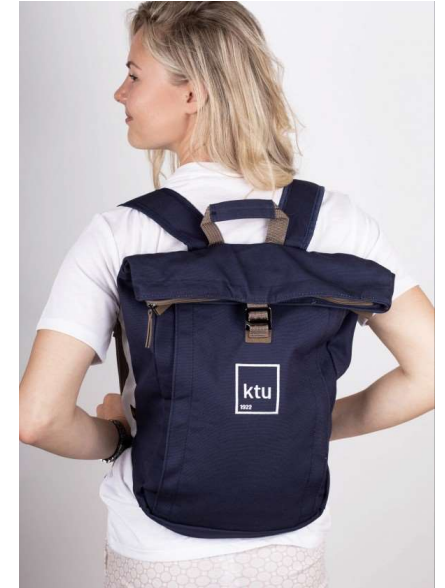


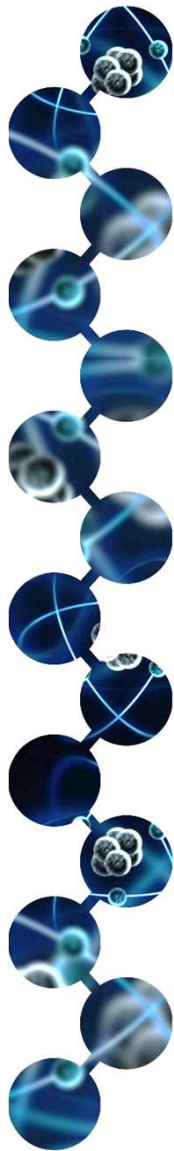
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Souvenirs





Name card



**BALTIC SCHOOL OF
HIGH-ENERGY PHYSICS AND
ACCELERATOR TECHNOLOGIES**
2023 August 7 – 11
Palanga, Lithuania

Name
SURNAME

Kaunas University of Technology
Lithuania

PARTICIPANT

HIGHLIGHTS


Monday, July 7
12:00 – 13:00 Registration
13:00 – 14:15 Welcome speeches & Presentations
14:15 – 14:25 Discussion
14:25 – 15:15 Lecture T. Torims
15:15 – 15:45 Discussion & Coffee break
15:45 – 16:45 Lecture M. Vretenar
16:45 – 17:00 Discussion
17:00 – 18:00 Lecture Y. Grossman
18:00 – 18:20 Discussion

Tuesday, July 8
09:20 – 10:20 Lecture Y. Grossman
10:20 – 10:40 Discussion & Coffee break
10:40 – 11:40 Lecture J. Ellis
11:40 – 12:00 Discussion
12:00 – 13:00 Lunch
13:00 – 14:00 Lecture M. Vretenar
14:00 – 14:20 Discussion
14:20 – 15:20 Lecture J. Seco
15:20 – 15:40 Discussion & Coffee break
15:40 – 16:40 Lecture J. Seco
16:40 – 17:00 Discussion
17:00 – 18:00 Lecture T. Camporesi
18:00 – 18:20 Discussion
19:20 – 23:00 Welcome party "Gobija"


Wednesday, July 9
09:20 – 10:20 Lecture Y. Dokshitzer
10:20 – 10:40 Discussion & Coffee break
10:40 – 11:40 Lecture Y. Grossman
11:40 – 12:00 Discussion
12:00 – 13:00 Lunch
13:00 – 14:00 Lecture A. Mazeliauskas
14:00 – 14:20 Discussion
14:20 – 15:20 Lecture T. Camporesi
15:20 – 15:40 Discussion & Coffee break
15:40 – 16:40 Lecture L. Rivkin
16:40 – 17:00 Discussion
18:00 – 20:00 Social event

Thursday, July 10
09:20 – 10:20 Lecture Y. Dokshitzer
10:20 – 10:40 Discussion & Coffee break
10:40 – 11:40 Lecture J. Ellis
11:40 – 12:00 Discussion
12:00 – 13:00 Lunch
13:00 – 14:00 Lecture A. Mazeliauskas
14:00 – 14:20 Discussion
14:20 – 15:20 Lecture L. Rivkin
15:20 – 15:40 Discussion & Coffee break
15:40 – 16:40 Lecture K. Dreimanis
16:40 – 17:00 Discussion

Friday, July 11
09:20 – 10:20 Lecture Y. Dokshitzer
10:20 – 10:40 Discussion & Coffee break
10:40 – 11:40 Lecture J. Ellis
11:40 – 12:00 Discussion & Closing remarks
12:00 – 13:00 Lunch



FULL PROGRAM





Competition

Most Active Participant of the School

Jury - Chairmen of the Sessions



Prof. Sigitas Tamulevičius



Dr. Stefan Groote



Dr. Aurelijus Rinkevičius



**Dr. Erika
Korobeinikova**



Dr. Brigita Abakevičienė



Most Active Participants of the School

Matei Climescu (University of Mains)

Zhanna Khuranova (Goethe University Frankfurt)

Sergei Solokhin (University of Amsterdam)

Arpan Chatterjee (University of Tartu)

Conrado Munoz Diaz (Riga Technical University)

Thomas Senger (University of Zurich)

Melisa Murati (Kaunas University of Technology)

Ugnius Igaris (Vilnius University)

Aurimas Vitkus (Vilnius University)

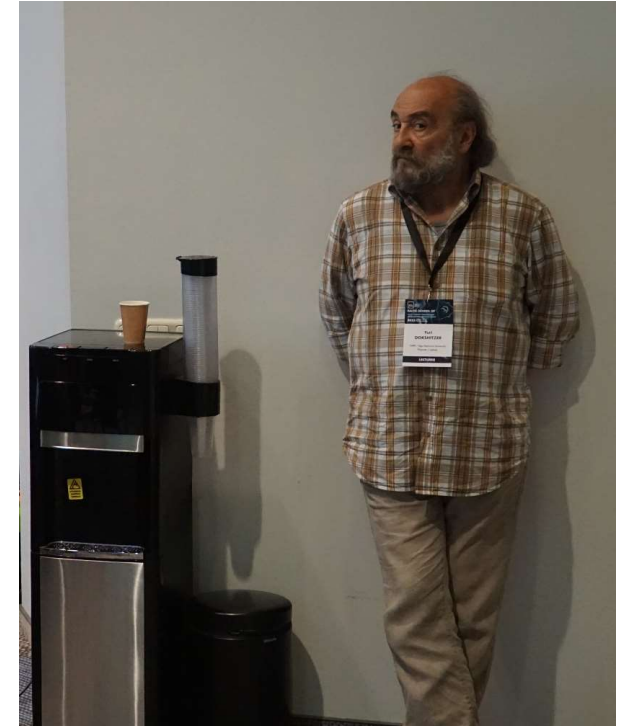




Most Active Participants of the School

Prof. Yuri Dokshitzer

CNRS / Riga Technical University, France / Latvia



Prof. Toms Torims

Riga Technical University / Latvia / CERN



Local Organizers





Sponsors

General Sponsors

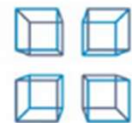


Research
Council of
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UAB "Power of Eye"

Costs



Accommodation + breakfast of 81 participants	25 000 EUR
Lunch, Coffee breaks, Welcome and Burger parties	10 600 EUR
Conference hall (5 days)	1 000 EUR
Other costs (social event, printing, flowers, flags, etc.)	2 000 EUR
Souvenirs	3 500 EUR
Lecturers and Ukrainian student travel expenses	2 900 EUR

TOTAL: 45 000 EUR

23 000 EUR – CBS 2022

21 000 EUR – CBS 2021

Budget

CERN-LT Consortium	30 000 EUR
Sponsors	2 300 EUR
The grant by Research Council By Lithuania	9 507 EUR
Conference fee (36 participants*200 EUR = 7 200 EUR) (27 participants*200 EUR) - 21 % taxes - 15 % (KTU)	3 456 EUR

TOTAL: 45 263 EUR

+ 263 EUR



4th CERN Baltic Group School 2024



See you in Latvia!

