



# CERN Baltijas Grupas aktivitātes

Dr. Andris Ratkus

RTU Daļiņu Fizikas un Paātrinātāju Tehnoloģijas Institūta Vadošais Pētnieks

11.04.2024

- CBG Vadītāja un Vienieka vēlēšanas
- CBG Baltijas skola
- CERN Baltijas Konference
- Daļiņu terapijas centra iniciatīva

# Vadītāja un vietnieka vēlēšanas



Chair: Brigita Abakevičienė (KTU)



Deputy: Kārlis Dreimanis (RTU)



# CBG Baltijas skola 2024



Current scientific committee for BSHEPAT'24 from the CBG side:

- Toms Torims (RTU);
- Christoph Scharfer (CERN);
- Maurizio Vretenar (CERN);
- Erika Korobeinikova (LSMU);
- Brigita Abakevičienė (KTU);
- Fjodor Sergejev (TTU, TalTech);
- Jevgenijs Proskurins (RSU);
- Aurelijus RinkeStankunasvičius (VU);
- Gediminas (LEI);



- COST Action 22130: COmprehensive 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'24 - prog.

- 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;

#	Topic	Volume	Option 1
1	QFT & SM	2x90 or 3x90	Mark Thomson
2	BSM	2x90	John Ellis
3	EFT (SM+H)	2x90 or 3x90	Tim Cohen
4	HEP exp.	2x90	Klaus Desch
5	Machine Learning	2x90 to 3x90	Lydia Brenner*
6	Accelerator physics & tech.	2x90 to 3x90	Maurizio Vretenar, Leonid
7	Future accelerators (tech.)	1x90	Jacqueline Keintzel
8	Future accelerators (phys.)	1x90	Jacqueline Keintzel**
9	Accelerator applications (incl. med)	1x90	Maurizio Vretenar & Leonid

	Contacted - YES
	Contacted - tentative yes
	Contacted - reply pending
	Contacted - interested
	Contacted - NO
	Not yet contacted

Time	Sunday (04.08.)	Monday (05.08.)	Tuesday (06.08.)	Wednesday (07.08.)	Thursday (08.08.)	Friday (09.08.)	
07:00-07:45	Arrival		Breakfast	Breakfast	Breakfast	Breakfast	
08:00-08:45			Shuttle				
09:00-09:45			Arrival & registration	LB V	LB VIII	LB XII	LB XVI
10:00-10:45			Welcome	Coffee	Coffee	Coffee	Coffee
11:00-11:45			LB I	LB VI	LB IX	LB XIII	LB XVII
12:00-12:45			Lunch	Lunch	Lunch	Lunch	Close & Coffee
13:00-13:45			LB II	LB VII	LB X	LB XIV	Shuttle
14:00-14:45			Coffee	Coffee	LB XI	LB XV	
15:00-15:45			LB III	Excursion to Irbene	Coffee	Coffee	Free time, Enjoy Riga &
16:00-16:45			Coffee		LB IV	Keynote	
17:00-17:45			Shuttle		Free time,	Free time	
18:00-18:45			Arrival &		Free time	School dinner	
19:00-19:45			Free		Free time		
20:00-20:45							
21:00-21:45							
22:00-22:45							

# CBG Baltijas skola 2021–2024



Draft

## Baltic School of High-Energy Physics and Accelerator Technologies 2021

Klapkalnciems, Latvia  
August 2 - August 6, 2021

**Lecturers:**  
Dr. Maurizio Vretenar  
Prof. Dr. Jonathan Ellis  
Prof. Dr. Yuri Dokshitzer  
Prof. Dr. Matteo Cacciari

**Scientific Program:**

- Quantum Field Theory
- Quantum Electrodynamics
- Quantum Chromodynamics
- Standard Model
- Higgs Mechanism
- Beyond the Standard Model
- Collider physics
- Precision physics at the LHC
- Particle accelerator technologies
- Particle accelerator applications

**Local Organizing Comitee:**  
Dr. Kārlis Dreimanis (RTU, LV)  
Prof. Dr. Toms Torims (RTU, LV)  
Ms. Elina Grate (RTU, LV)  
Ms. Ais Rīse (RTU, LV)  
Andrijs Potrebko (RTU, LV)

**Scientific Comitee:**  
Dr. Mario Kadastik (NICPB, EE)  
Prof. Dr. Mārcis Auziņš (LU, LV)  
Dr. Brigita Abakevičienė (KTU, LT)  
Prof. Dr. Renno Veinthal (TalTech, EE)  
Dr. Vahur Zadin (UT, EE)  
Dr. Thomas Gajdosik (VU, LT)  
Dr. Martijn Mulders (CERN)  
Prof. Dr. Leonids Ribickis (RTU, LV)  
Prof. Dr. Jevgenijs Proskurins (RSU, LV)  
Dr. Aleksas Mazeliauskas (CERN)

Further information:  
<https://www.rtu.lv/en/hep/education/summer-school>  
email: hep@rtu.lv  
Registration deadline: June 25th

## TAL TECH | BALTIC SCHOOL OF HIGH-ENERGY PHYSICS AND ACCELERATOR TECHNOLOGIES 2022

TALLINN UNIVERSITY OF TECHNOLOGY

Saaremaa, ESTONIA  
August 8–12, 2022

**LECTURERS:**  
Prof. Jonathan Ellis  
Prof. Yuri Dokshitzer  
Prof. Fiura Djurabekova  
Prof. Leonid Rivkin  
Dr. Maurizio Vretenar  
Dr. Walter Wuensch  
Dr. Andi Hektor

**SCIENTIFIC COMMITTEE:**  
Prof. Fjodor Sergejev (TalTech)  
Prof. Veronika Zadin (UT)  
Prof. Toms Torims (RTU)  
Prof. Brigita Abakevičienė (KTU)  
Prof. Mārcis Auziņš (LU)  
Dr. Kristjan Kannike (NICBP)  
Dr. Thomas Gajdosik (VU)  
Dr. Jevgenijs Proskurins (RSU)

**LOCAL ORGANIZING COMMITTEE:**  
Prof. Fjodor Sergejev (TalTech, EE)  
Dr. Erki Kärber (TalTech, EE)  
Prof. Veronika Zadin (UT, EE)  
Veiko Vill (TalTech, EE)

**SCIENTIFIC PROGRAMME:**

- Quantum Field Theory
- Standard Model and Beyond
- Physics at Colliders
- Early Cosmology
- Dark Matter
- Gravitational Waves and New Physics
- Accelerator Technologies
- Accelerator Applications

Further information and fees:  
Preliminary registration deadline: [indico.cern.ch/e/CBG2022](https://indico.cern.ch/e/CBG2022)  
June 1<sup>st</sup>

## ktu | BALTIC SCHOOL OF HIGH-ENERGY PHYSICS AND ACCELERATOR TECHNOLOGIES 2023

kaunas university of technology  
1922

August 7 – 11  
Palanga, Lithuania

**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

**LECTURERS:**  
Dr. Maurizio Vretenar (CERN)  
Prof. Jonathan Ellis (UK)  
Prof. Yuri Dokshitzer (LV)  
Prof. Leonid Rivkin (CH)  
Prof. Kārlis Dreimanis (LV)  
Dr. Aleksas Mazeliauskas (DE)  
Prof. Yuval Grossman (USA)  
Prof. Joao Seco (DE)  
Prof. Toms Torims (LV)  
Prof. Tiziano Camposi (PT, USA)

**SCIENTIFIC COMMITTEE:**  
Dr. Maurizio Vretenar (CERN)  
Prof. Christoph Schafer (CERN)  
Prof. Toms Torims (RTU, LV)  
Prof. Mārcis Auziņš (UL, LV)  
Prof. Kārlis Dreimanis (RTU, LV)  
Dr. Jevgenijs Proskurins (RSU, LV)  
Dr. Aleksajs Klokos (VIRAC, LV)  
Dr. Uids Valanis (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 Rinkevicius (VU, LT)  
Dr. Erika Rajackaitė (KTU, LT)  
Dr. Rasa Žostautienė (KTU, LT)  
PhD Mindaugas Ilckas (KTU, LT)

**LOCAL ORGANIZING COMMITTEE:**  
Dr. Brigita Abakevičienė (KTU, LT)  
Dr. Aurelijus Rinkevicius (VU, LT)  
Dr. Asta Guobienė (KTU, LT)  
Dr. Erika Rajackaitė (KTU, LT)  
Dr. Rasa Žostautienė (KTU, LT)  
PhD Mindaugas Ilckas (KTU, LT)

REGISTRATION DEADLINE: June 20, 2023  
[indico.cern.ch/event/1249205](https://indico.cern.ch/event/1249205)

## BALTIC SCHOOL OF HIGH ENERGY PHYSICS AND ACCELERATOR TECHNOLOGIES 2024

August 5-9  
Kuldīga, Latvia

**Scientific Programme**

- Quantum Field Theory & Standard Model
- Beyond the Standard Model physics
- Effective Field Theory
- Higgs physics at the LHC
- Topics in Machine Learning
- Accelerator Physics
- Accelerator Applications
- Future Accelerators

**Lecturers**

TBC

**Scientific Committee**

- Maria Brivio (University of Bologna, IT)
- Karolos Potamianos (University of Warwick, UK)
- Giovanni Paliccioli (Max-Planck Institute, DE)
- Alessandra Cappati (Ecole Polytechnique, FR)
- Valentina Cairo (CERN)
- Arnaud Ferrari (Uppsala University, SE)
- Fátima De Almeida Dias (NIKHEF, NL)
- Ramona Groeber (University of Padova, IT)
- Riccardo Finkelstein (CEA, FR)
- Claudius Krauss (GSI, AT)
- Matteo Prasilla (KIT, DE)
- Pietro Govoni (University of Milano-Bicocca, IT)
- Kārlis Dreimanis (RTU, LV)
- Toms Torims (KTU, LV)
- Brigita Abakevičienė (KTU, LT)
- Christoph Schaefer (CERN)
- Maurizio Vretenar (CERN)
- Erika Korobainikova (LSMU, LT)
- Jevgenijs Proskurins (RSU, LV)
- Fjodor Sergejev (TalTech, EE)
- Aurelijus Rinkevicius (VU, LT)
- Gediminas Stankūnas (LEI, LT)

**Local organizers**

- Kārlis Dreimanis
- Gundega Selga Horste
- Silva Vitola
- Kristaps Polskis

Registration deadline  
1<sup>st</sup> of June

For more information:  
<https://indico.cern.ch/event/XXXXXX/>  
hep@rtu.lv

# 4. CERN Baltjas Konference (CBC 2024)



Tallina, Taltech  
17.-18.10.2024

## Scope and scientific topics

The scope of CBC 2023 includes the presentation of the most recent results of the Baltic scientific community in CERN-related fields of research, as well as dedicated sessions for the discussion of national and regional level scientific policy, higher education and industry engagement topics.

The scientific topics include, but are not limited to:

- Particle physics: experiment;
- Particle physics: theory;
- Accelerator physics;
- Accelerator and particle detector technologies;
- Medical physics.





# CERN Baltjas Grupas sanāksme



Tallina, Taltech  
15.-16.10.2024





# “Advanced Particle therapy center in the Baltic States” initiative

*Current status*

*Future outlooks and feasibility study*

On behalf of the CERN Baltic group  
*“Advanced Particle therapy center for the Baltic States”* working group

Toms TORIMS, Kristaps PALSKIS, Erika KOROBEINIKOVA, Sergei NAZARENKO



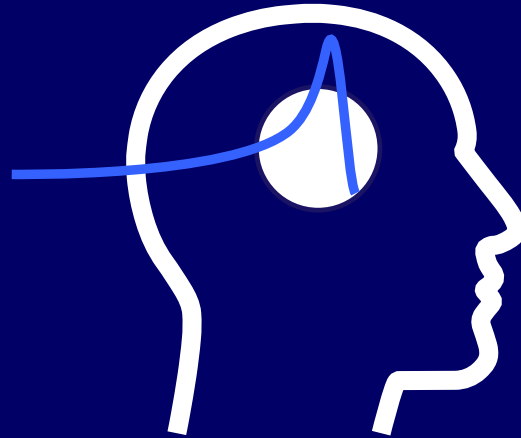


# The overall proposed concept

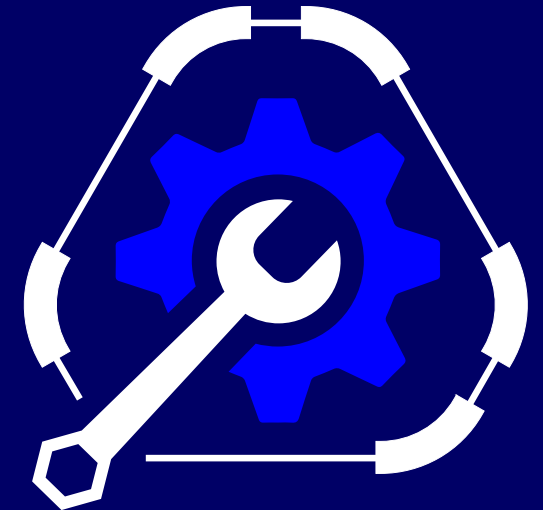
**Integration of helium synchrotron technology and all the capabilities into a modern clinical treatment center and large scale scientific research infrastructure**



**Research institution**



**Clinical cancer treatment facility**  
*Particle therapy and nuclear medicine*



**Industry involvement infrastructure**



# Next Ion Medical Machine Study



CERN-based scientific collaboration  
for development of next generation particle  
accelerators for cancer treatment with ion  
therapy

- Building on experience of PIMMS
- Federating large number of partners for key technology development
- **Partners can use the NIMMS technologies to assemble their own optimized facility**



# Next Ion Medical Machine Study

**1996/2000:** CERN hosts **PIMMS** (Proton-Ion Medical Machine Study), a collaborative study (CERN, TERA Foundation, MedAUSTRON, Onkologie 2000) for the design of a **cancer therapy synchrotron**. The study has been the foundation for the construction of the **CNAO** and **MedAustron** particle therapy centres.

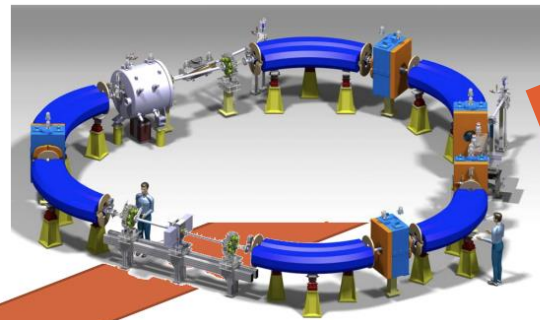
In parallel, **GSI** develops a similar technology and treats the first patients. This experience goes in the construction of the **HIT** and **MIT** therapy centres



D=25 m

Courtesy: M. Vretenar

**Carbon @430 MeV/u**  
( $B_p = 6.6 \text{ Tm}$ )



NIMMS He-ions design, ~11m

**Helium @ 220 MeV/u**  
( $B_p = 4.5 \text{ Tm}$ )

HITACHI Synchrotron, ~6m



**Protons @230 MeV**  
( $B_p = 2.42 \text{ Tm}$ )

Courtesy: E. Benedetto



# Milestones achieved





# “Particle therapy - future for the Baltic States?”



A joint, dedicated workshop  
“Particle therapy - future for the Baltic States? State-of-play, synergies and challenges”

## There would be no workshop without the reporters and moderators

Erika Korobeinikova (*Lithuanian Society of Radiation Oncology, LSMU, Clinic of Kaunas*)

Anna Maria Camarda (*CNAO*)

Dace Bogorada-Saukuma (*Latvian Association of Therapeutic Radiology*)

Maija Radziņa (*Latvian Radiology Association, University of Latvia*)

Andrejs Ērglis (*University of Latvia*)

Manjit Dosanjh (*University of Oxford, CERN*)

Maurizio Vretenar (*CERN*)

Elena Benedetto (*SEEIIST Association, CERN*)

Taylor Rebecca (*Imperial College, CERN*)

Edgars Mamis (*University of Latvia, CERN*)

Diana Adlienė (*KTU, CERN Baltic Group*)

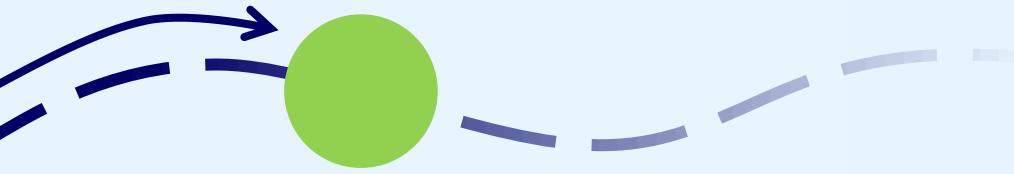
Toms Torims (*RTU, CERN Baltic Group*)

Kristaps Palskis (*RTU, CERN*)





# “Particle therapy - future for the Baltic States?”



A joint, dedicated workshop  
“Particle therapy - future for the Baltic States? State-of-play, synergies and challenges”

## Recap of the event

- **37 participants** (*mainly on site participants*) – Baltic medical community representatives, CNAO radiation oncologist, CERN and NIMMS experts, members of political bodies – Baltic Assembly
- **5 sessions** dedicated to each of the core discussion areas identified with **reporters on subject matter and moderators of the session**

*Cancer statistics and indication profile in the Baltic States. Status of radiotherapy technologies in the Baltic States.*

- Cancer statistics in the Baltic States – number of patients diagnosed and treated with RT yearly
- Most common malignancies, with a correspondence to eligibility for particle therapy
- Technological level of currently used radiation therapy techniques, statistics of RT equipment

*Clinical indications for proton and particle therapy. Existing clinical evidence and on-going clinical trials.*

- Main cancer types and oncological indications eligible
- On-going clinical trials for evidence-based medicine are to be discussed
- Existing consensus statements and alternative approaches for patient selection

*The technology of helium synchrotron: technology readiness level and research needed.*

- Current status of the technology and technology readiness level
- Potential challenges in the development and construction stages
- Scientific research inputs necessary

*Current status of nuclear medicine in the Baltic States. Trends and research pathways going into the future.*

- Current status of the nuclear medicine field within the Baltic States
- Insights gained from PRISMAP project - focus on novel radioisotopes
- Technical aspects and scientific research needed to develop production of such isotopes

*Educational necessities and possible solution pathways for clinical and technical personnel training.*

- Key educational necessity areas
- International educational opportunities and collaborations
- Educational aspect implementation paths early-on within the project initiative





# Milestones achieved as of last report





**Seminar with all 3 Baltic medical physicist associations on CERN medical applications research**

**Presentation at 16<sup>th</sup> International Conference «Medical Physics in the Baltic States 2023»**

**Presentation at CERN Medical Applications Steering Committee**

Workshop overview and conclusions have been prepared as a publication in a dedicated issue of «*Health and Technology*»  
**«Hadrontherapy and BNCT: Current Status and Future Trends»**

**Oct 2023**

**Nov 2023**

**Jan 2024**

**Feb 2024**



Seminar with all 3 Baltic medical physicist associations on CERN medical applications research

Presentation at 16<sup>th</sup> International Conference «Medical Physics in the Baltic States 2023»

Presentation at

## Future of the initiative FEASIBILITY STUDY

Oct 2023

Nov 2023

Jan 2024

Feb 2024



## Future of the initiative

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graph TD; A[Future of the initiative] --> B[Feasibility study on implementation in the Baltics]; A --> C[EIC Pathfinder project application for prototyping of technology];
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### Feasibility study on implementation in the Baltics

- Feasibility of a dedicated facility in the Baltic States – core focus of technology adaptation and integration for a specific facility, along with analysis on the epidemiological case in the region and treatment eligibility criteria

### EIC Pathfinder project application for prototyping of technology

- Helium synchrotron technology is still in **active development within CERN NIMMS collaboration** – prototyping of the crucial technologies would be highly beneficial
- A possible EIC Pathfinder project application is foreseen for this research with CERN as leading institution together with technical and medical university representatives from the Baltic States



## Future of the initiative

### Ambitious vision

- To «*find a path*» for a novel combination/new approach for treatment of cancer with radiotherapy using particle beams
- This will be done with much better results: precision and efficiency
- Not only with eradicating the cancer, but also improvement of quality of life
- Implementation of an affordable cancer treatment technology in EU – show case
- Ambition is to provide proof that «*it works*», «*it is possible*» – critical aspects of the technology to be validated in lab at CERN - prototyping

### EIC Pathfinder project application for prototyping of technology

Helium synchrotron technology is still in **active development within CERN NIMMS collaboration** – prototyping of the crucial technologies would be highly beneficial

A possible EIC Pathfinder project application is foreseen for this research with CERN as leading institution together with technical and medical university representatives from the Baltic States



## Proposed consortium

1. CERN – project leader and coordinator
  2. One partner (LV)
  3. One partner (LT)
  4. One partner (EE)
  5. *one of the European particle therapy centres*
- Partners have to be from the universities with the very strong CERN related technological competences , since this is technological project*





## Budget

- **100% costs, no co-financing needed**
- **3 M**
- Project to be prepared by outside experts – **cost is 20K +VAT**  
- to be shared equally among partners
- **Project preparation has been started and decisions have to be made now**





## Why to apply? Supporting ideas

- **We are looking for support to realise an ambitious vision for radically new technology, with potential to create new markets and to address global challenges**
- This is an early-stage development of this future technology – we are proposing various activities at TRL 1 to 4, based on high-risk/high-gain science-towards-technology breakthrough research
- This research is providing the foundations of the envisioned technology
- **Set out to try things that may not work**
- **We are faced with questions that nobody knows the answers to yet**
- **There are many aspects of the problem that we have not yet mastered**





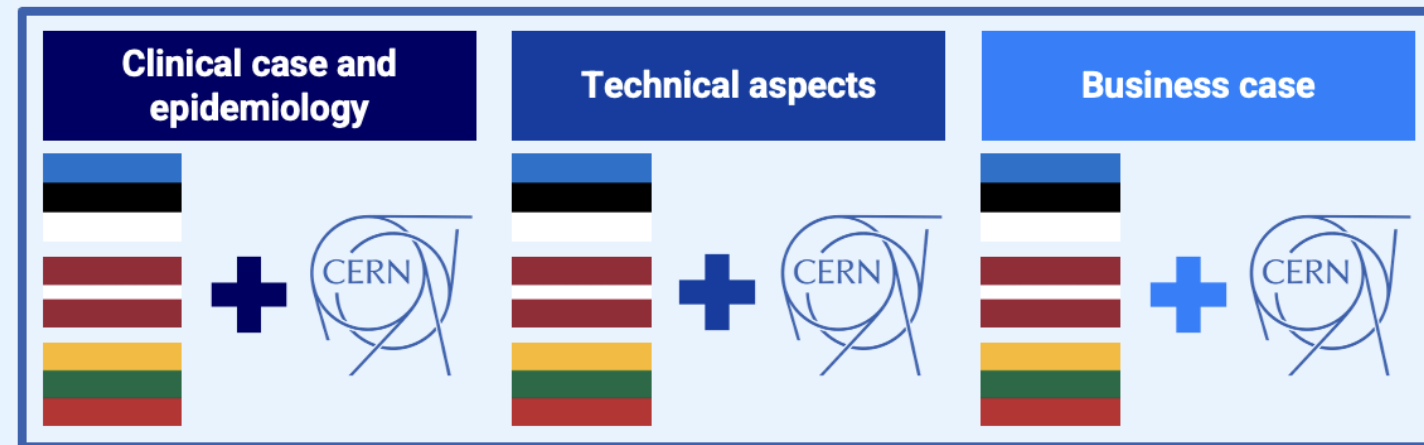


## Future of the initiative

### Feasibility study on implementation in the Baltics

- Feasibility of a dedicated facility in the Baltic States – core focus of technology adaptation and integration for a specific facility, along with analysis on the epidemiological case in the region and treatment eligibility criteria

### A full-scale feasibility study of the project



Within the framework of CERN



## The Medical Case „Cancer epidemiology in the Baltic States”

*Core question for the working group:*

**ARE WE READY TO USE THIS TECHNOLOGY – ARE THERE ENOUGH PATIENTS AND  
WHAT ARE THE TRENDS IN RADIATION THERAPY AND NUCLEAR MEDICINE IN THE  
BALTIC STATES?**



## Technological aspects

### „Technological integration for a facility in the Baltic States”

*Core question for the working group:*

**IF WE ARE READY, HOW DO WE WANT TO USE AND ADAPT THE HELIUM SYNCHROTRON TECHNOLOGY FOR A FACILITY IN THE BALTIC STATES?**



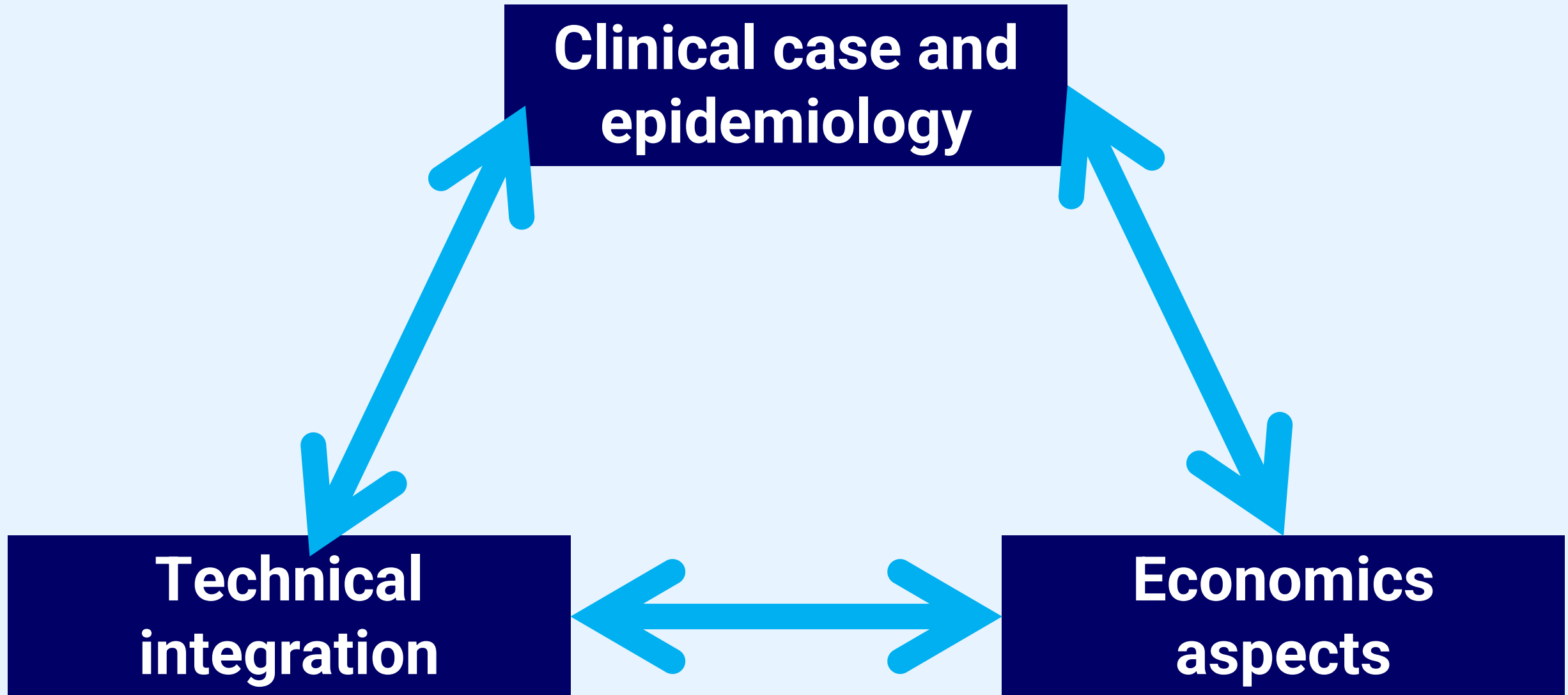
## „Economical aspects and business plan”

*Core question for the working group:*

**HOW TO USE THE FACILITY FOR MAXIMUM BENEFIT – NOT JUST FROM CLINICAL TREATMENT ECONOMICS, BUT ALSO INDUSTRY INVOLVEMENT AND FUTURE R&D AVENUES?**

### *Some initial core ideas:*

- Economics aspects of the treatment - how many patient needed from financial perspective, how should workflow be optimized (patients per day) for financial gain etc.
- Financial aspects of treatment reimbursement strategies
- Estimates of the costs for starting up and for operating the facility in the long-term
- Business aspects - industry involvement in delivery, future technology R&D projects and isotope production and export
- Comparative benefit analysis with commercial proton therapy machines (all aspects, especially scientific programme freedom)





## FS Leader (@CERN) + Project. Admin.+ Comm

### Clinical and epidemiology



**Pillar Leader** - Senior Researcher with proven knowledge in the field

**LUHS**



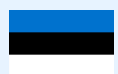
PhD student or researcher

**NCI**



PhD student or researcher

**RSU**



PhD student or researcher  
**North Estonia Medical Centre**

### Technical aspects



**Pillar Leader** - Senior Researcher with proven knowledge in the field

**RTU**



PhD student or researcher

**KTU+LEI**



PhD student or researcher

**LU**



PhD student or researcher

**TalTech**

### Economic assessment



**Pillar Leader** - Senior Researcher with proven knowledge in the field

**TalTech**



PhD student or researcher

**VU**



PhD student or researcher

**LU**



PhD student or researcher

**TU**

## Criteria: commitment, competence, collaboration

+ associated partners of CBG member institutions



- CERN Hosted Activity of CERN Baltic Group
- Feasibility study personnel:
  - to be employed by home institutions of CBG Members (USER, COAS, PJAS, VISC)
  - or enrolled in CERN Doctoral Programme (DOCT)
  - or enrolled in CERN Technical Student Programme (TECH)
- To be paid subsistence (COLA) allowance (or remuneration if DOCT or TECH) in accordance with the CERN «*Subsistence rates for associated members of the personnel*»
- To be directly supervised by an expert in the field at the home institution (*competence*)
- Activity has to be integrated and aligned with the study or research process at the home institution

**Opportunity to build expertise, capacity and strong collaboration during the long-term attachment with CERN**




# Feasibility study leader: 124 000

**Clinical and epidemiology**





**Technical aspects**





**Economic assessment**



Pillar Leader **61 000**      Pillar Leader **61 000**      Pillar Leader **61 000**

 **56 000**       **56 000**       **56 000**

 **56 000**       **56 000**       **56 000**

 **56 000**       **56 000**       **56 000**




**+ administrative costs: 40 550**

**+ travel: 9 500**





# Feasibility study: Estimated total costs

	Year 1	Year 2	Total contribution
	287 016	287 016	574 033
	287 016	287 016	574 033
	287 016	287 016	574 033
<b>Total</b>	<b>861 050</b>	<b>861 050</b>	<b>1 722 100</b>



- **Professional medical associations**
  - ***radiation oncologists***
    - Lithuanian Society for Radiation Therapy
    - Latvian Society of Therapeutic Radiology
    - Estonian Society for Clinical Oncology and Estonian Society of Oncology
  - ***medical physicists***
    - Lithuanian Society of Medical Physicists
    - Latvian Medical Engineering and Physics Society
    - Estonian Society for Biomedical Engineering and Medical Physics
  - ***radiologists***
    - Lithuanian Radiologists' Association
    - Latvian Society of Radiology
    - Estonian Society of Radiology
  - ***Baltic Nuclear Medicine Association***



- **National Cancer Institutions in the 3 Baltic Countries**
  - **National Cancer Institute (Vilnius)**
  - **Tartu University Hospital and North Estonia Medical Centre**
  - *To be* **National Cancer Centre** in Latvia under **Riga East Clinical University hospital**



- **Baltic Assembly**
- The 3 Baltic **ministries of science and research**
- The 3 Baltic **ministries of healthcare**
- The 3 Baltic **ministries of economy**
- The 3 Baltic **research councils**
  
- **European Commission**
- **ENLIGHT network** and partners
- **HITRIplus project** community
- **PRISMAP project** community
- European ion therapy centers: **HIT, CNAO, MedAustron, MIT**



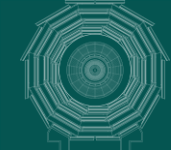
**Thank you for  
your attention !**



# CBG Studiju Programmas darba grupas aktivitātes



## European Master



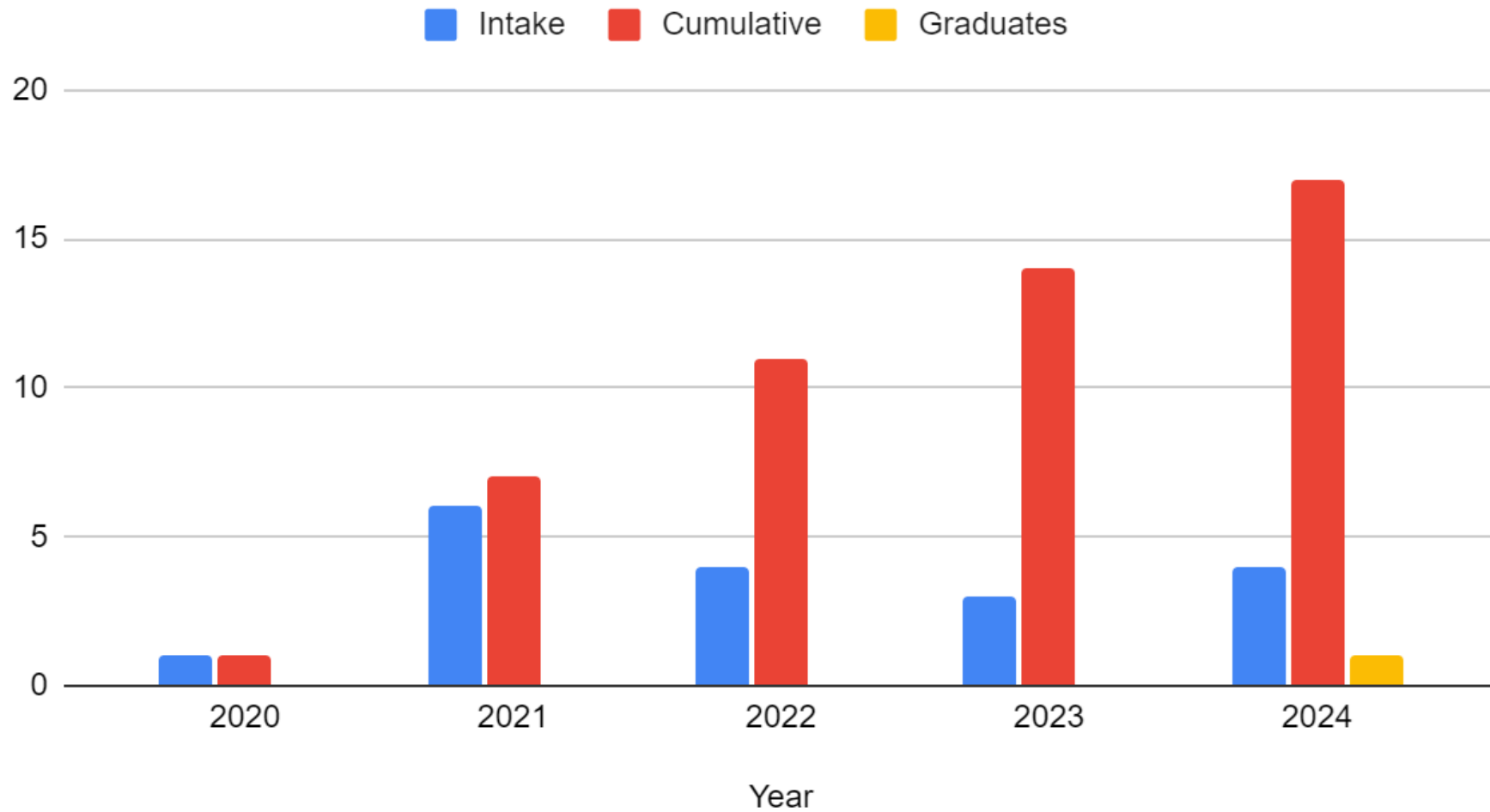
- Recap of the programme:
  - DSP “Particle physics and accelerator technologies” is implemented jointly by RTU and UL;
  - The development, implementation and oversight is done with the support of the CBG partners;
  - The programme has a dedicated study programme council consisting of 8 council members:
    - 2 representing RTU;
    - 2 representing UL;
    - 2 representing the CBG;
    - 2 representing CERN;
    - + 2 programme directors (1 from RTU, 1 from UL);
- Student attestation is performed yearly; for the academic year 2023/24 it is planned for the week of the 10th of June;
- This programme is expecting it’s first successful thesis defence in 2024 [or early 2025 at the very latest] !
  - crucial test of the success of our work !



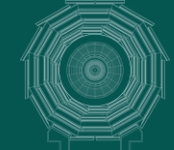
# Update on numbers



Student statistics [planned by the end of 2024]







# Development of the master's programme



- Recap: Erasmus Mundus Design Measures (EMDM):
  - Successful bid for EMDM funding in 2022;
    - 55 kEur (originally, 15 months until 31st of December 2023);
    - Deliverable: developed joint mechanisms for a new master's study programme;
    - Successfully applied for an extension on the deliverable due date - now due end of May, 2024.
- Aims of the EMDM project:
  - to develop joint mechanisms for admissions, evaluation, award of the degree, dissemination & communication mechanisms;
  - to develop the above mechanisms to be fully in line with the requirements for the [Erasmus Mundus Joint Masters \(EMJM\)](#) calls;
  - to develop a curriculum that would be highly competitive & desirable internationally (incl. to Western European students);
- Aims of the planned master's programme:
  - to develop the scientific capacity in modern fundamental physics and related technologies in the Baltic region;
  - to train and develop human resources with the skills and competencies desired by the local industry;
  - to increase the internationalisation of the higher education ecosystem in the Baltic region.
- **Crucial necessity: we must attain a single joint diploma !**

It is agreed by all partners of the consortium that without a joint diploma this programme will not be tenable !

Initial talks with Baltic Assembly to promote this have taken place; follow-up/update required.



# Challenges & Summary



- Doctoral study programme is doing extremely well (though still requires some work to rejig some courses, etc.).
- Otherwise, the last 18 months have been extremely challenging!
- Work EMDM project implementation was continuously postponed, due to lack of time/resources; now fully on track as a high-priority item !
- Current due date for the EMDM deliverables - 31st of May 2024 [we do seem to be on track !]
- EMJM project proposal submission targeted for February 2025.
- If successful, first EMJM cohort would start in the academic year 2026/27.
- **Crucial[!]**: the Joint Master's programme 100% go/no-go dependent on the joint diploma availability.