



Report on CBC'23

Kārlis Dreimanis

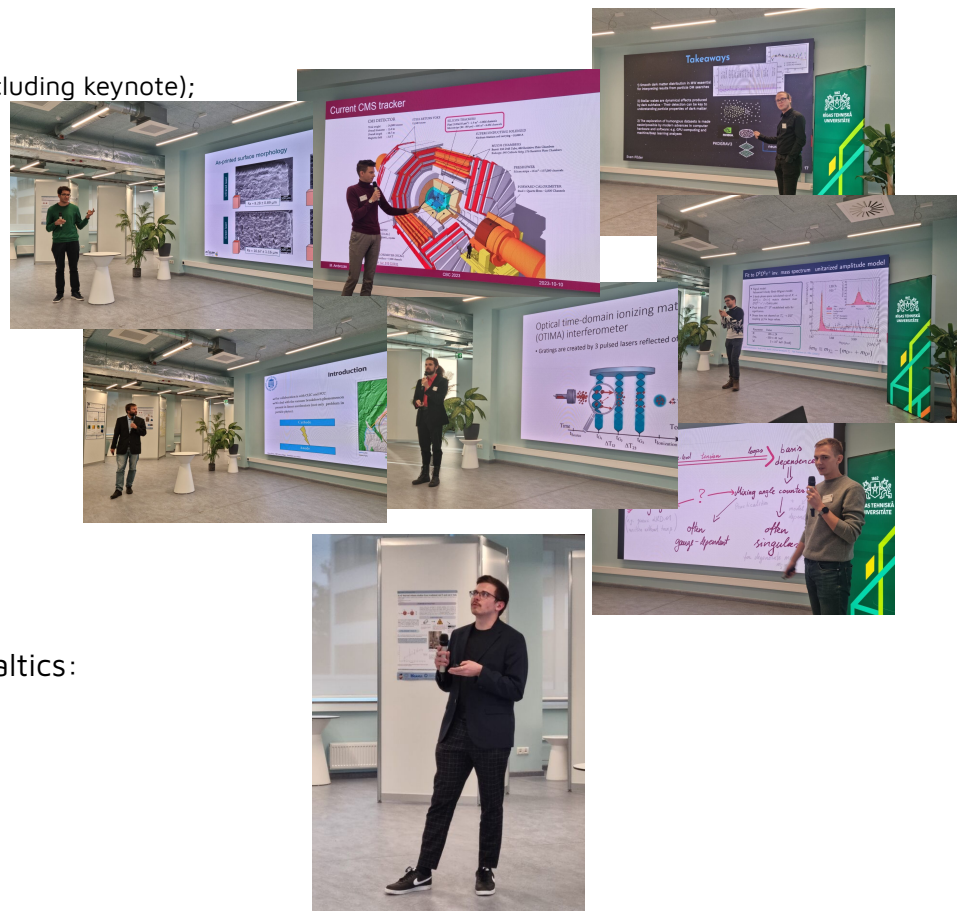
CBG General Meeting, Riga Stradins University, Latvia
12.10.2023

- Conference opening by:
 - Prof. Ants Koel (Chairman of the CBG);
 - Ms. Charlotte Lindberg Warakaulle (CERN Director of International Relations);
 - Prof. Tālis Juhna (Rector of RTU);
- Honored by addresses of dignitaries of the Baltic states:
 - Dr Mario Kadastik, MP of Riigikogu, Estonia;
 - Ms Rasa Kulvietienė, Advisor to the Minister of Education, Science and Sport of Lithuania;
 - Ms Silvija Reinberga, Parliamentary Secretary of the Ministry of Education and Science;
 - Mr Timo Suslov, President of the Baltic Assembly;
- Industry session led by ILOs for Estonia and Latvia:
 - Mr Robert Aare (EE);
 - Ms Alise Pīka-Ozola (LV);



Scientific programme : talks

- 25 accepted scientific oral contributions:
 - Theoretical & experimental physics: 10; (← including keynote);
 - HEP detectors & scintillating materials: 4;
 - Medical physics & technologies : 2;
 - Accelerator technologies: 5;
 - ITC and “Big” & “small” data: 2;
 - cancellations: 2.
 - Of these:
 - from Latvia: 13;
 - from Lithuania: 6;
 - from Estonia: 3;

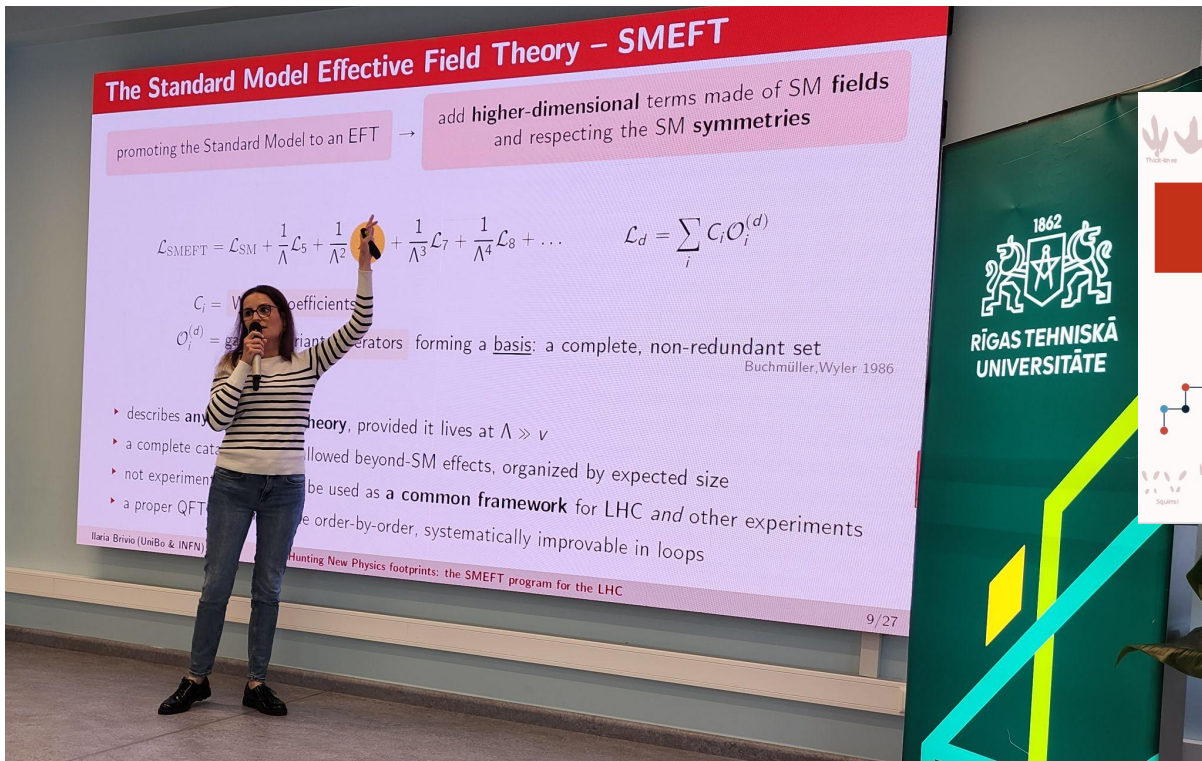


- Significant update talk on the Ion Therapy Centre in the Baltics:
 - Kristaps Paļskis:
“Baltic particle therapy center initiative:
Status report, lessons learned and next steps”;

Scientific programme : Keynote



- Assist. Prof. Ilaria Brivio (University of Bologna, Italy);
- Chair of the CA22130 - "COMETA".



The Standard Model Effective Field Theory - SMEFT

promoting the Standard Model to an EFT → add higher-dimensional terms made of SM fields and respecting the SM symmetries

$$\mathcal{L}_{\text{SMEFT}} = \mathcal{L}_{\text{SM}} + \frac{1}{\Lambda} \mathcal{L}_5 + \frac{1}{\Lambda^2} \mathcal{L}_6 + \frac{1}{\Lambda^3} \mathcal{L}_7 + \frac{1}{\Lambda^4} \mathcal{L}_8 + \dots \quad \mathcal{L}_d = \sum_i C_i \mathcal{O}_i^{(d)}$$

$C_i = \mathcal{W}_i$ coefficients
 $\mathcal{O}_i^{(d)}$ = gauge invariant operators forming a basis: a complete, non-redundant set
Buchmüller, Wyler 1986

- describes any theory, provided it lives at $\Lambda \gg v$
- a complete catalogue of allowed beyond-SM effects, organized by expected size
- not experimentally accessible → can be used as a **common framework** for LHC and other experiments
- a proper QFT → can be used order-by-order, systematically improvable in loops

Hunting New Physics footprints: the SMEFT program for the LHC

Ilaria Brivio
Università & INFN Bologna

- 20 accepted posters (2 cancellations);
- 2 hours poster-session (aided by *encouraging beverages*);
- Similar scope/breadth of science as with the talks;
- Real *conference feeling*;

- Immediate feedback from the students:

"[..] yeah, it was cool [..]"

and

"[..] I actually enjoyed it [..]";

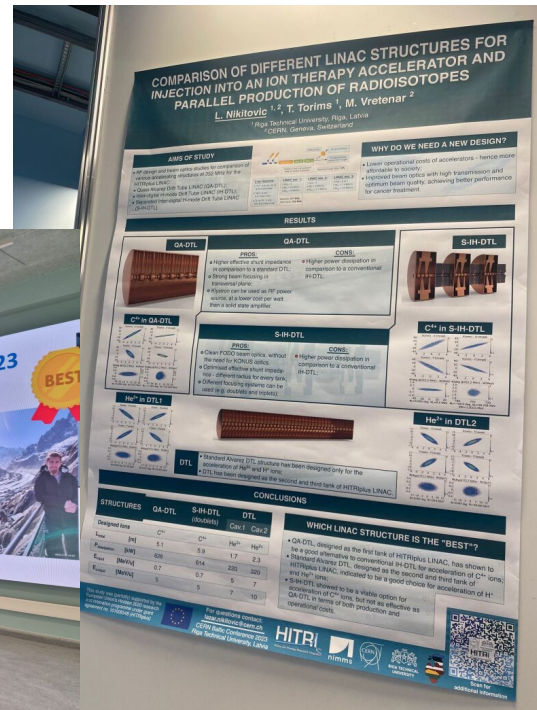


Scientific programme : best poster prize!



- Awarded by a committee of volunteer reviewers (in a collaborative and informal way :) ;
- Winner: **Lazar Nikitovic (RTU)**

Topic: *Comparison of different LINAC structures for injection into an ion therapy accelerator and parallel production of radioisotopes*



Social dinner (slide stolen from Brigita!)

Social Dinner

Folkklubs ALA PAGRAB'S (Peldu iela 19, Riga)



5/50

Scientific committee

Prof. Toms Torims (RTU, LV), Prof. Mārcis Auziņš (UL, LV)
Dr Maurizio Vretenar (CERN), Dr Martijn Mulders (CERN)
Dr Karlis 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 Brigita Abakevičienė (KTU, LT)
Dr Aurelijus Rinkevičius (VU, LT), Dr Erika Korobeinikova (LSMU, LT)
Dr Augustinas Stepšys (VDU, LT), Dr Gediminas Stankūnas (LEI, LT)



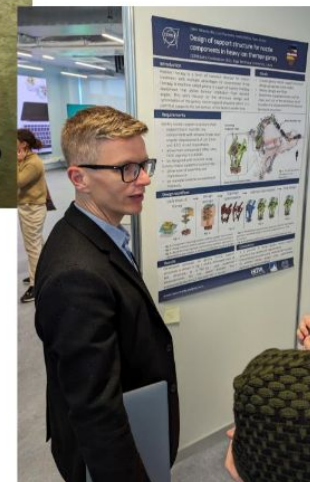
CERN
Baltic Group



Local Organisers (slide stolen from Brigita!)



Dr. Karlis Dreimanis
Dr. Andris Ratkus
Ms Gundega Selga Horste
Ms Silva Vitola
Mr Andris Potrebko
Mr Kristaps Palskis



The conference is financed by RTU Institute of Particle Physics and Accelerator Technologies and CERN National Contact Point of Latvia.

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**Actually did
everything**

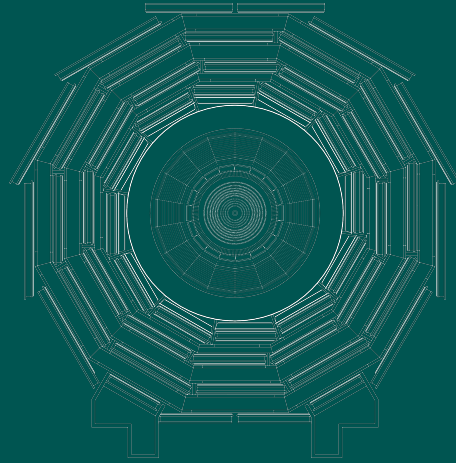
**Just complained
a lot and signed
some documents**

- Overall, 76 registrations;
- ~60 actual participants!

(not everyone made into the conference picture)



 09 - 11 OCTOBER
RIGA TECHNICAL UNIVERSITY
3rd CERN Baltic Conference
2023



Thank you