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<https://physicsmasterclasses.org>

International Masterclasses in LITHUANIA 2022



Outline:

- **International Masterclasses**
 - Particle Therapy
 - CMS Physics

- **Teacher engagement and outreach**



**Assoc. Prof. Dr. Brigita
Abakevičienė**

Kaunas University of Technology,
Faculty of Mathematics and Natural
Sciences

Institute of Materials Sciences



**Assoc. Prof. Dr. Aušra
Kynienė**

Vilnius University, Faculty of Physics

International Particle Therapy Masterclass

11th February, 2022

<https://indico.cern.ch/event/1120845/>

Infopage: <https://indico.cern.ch/event/840212/>

Lecturers:



Prof. Elona Juozaitytė

Head of the Institute of Oncology, Lithuanian University of Health Sciences



Dr. Jonas Venius

Head of Medical Physics Department,
National Cancer Institute



PhD stud. Kirill Skovorodko

Expert of Medical Physics at Vilnius University
Hospital Santaros Klinikos

Practice

„matRad“



Dr. Jurgita Laurikaitienė

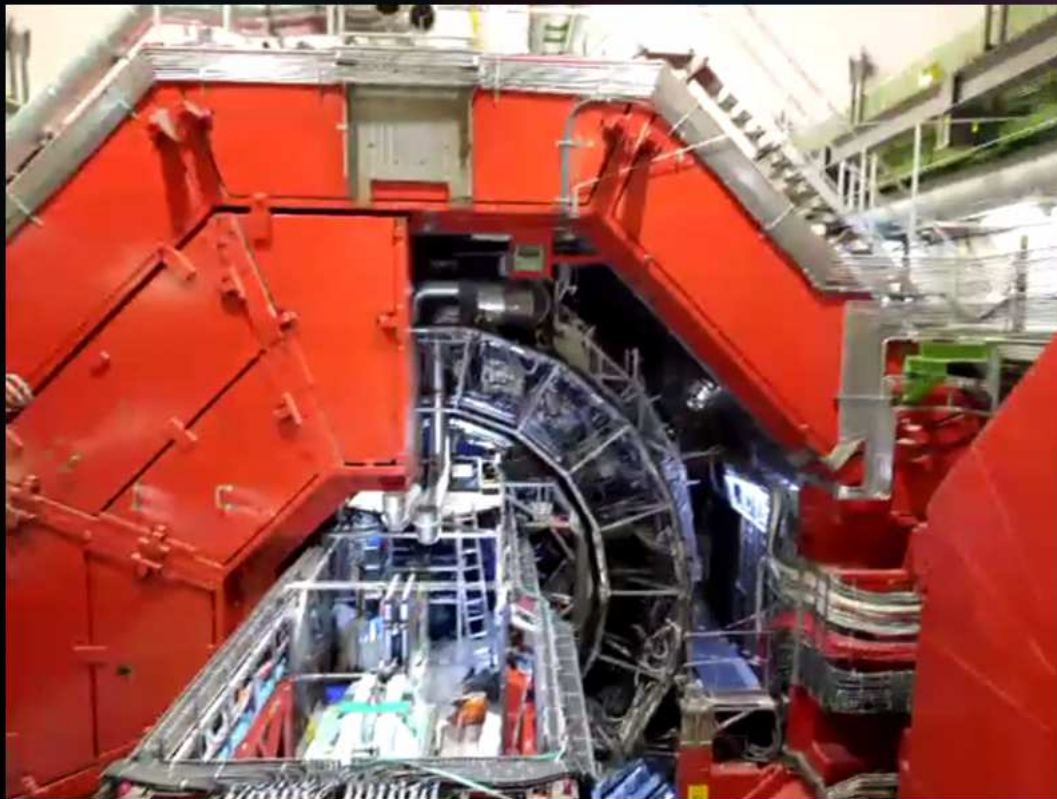
LSMU Kaunas Physics Branch Oncology
Hospital, Medical Physicist Expert in
Radiotherapy, Assoc. Prof. Dr. at KTU



Dr. Aurelijus Rinkevičius

Head of the Experimental Nuclear and
Particle Physics Center, VU

Virtual tour „Large Hadron Collider Experiment (ALICE)” (CERN)



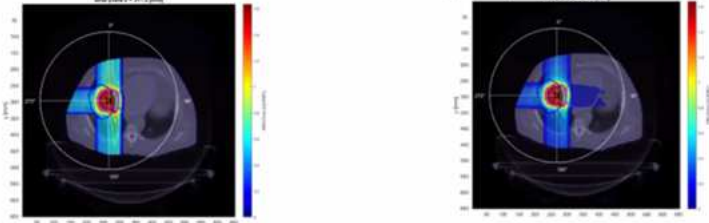
Dr. Despina Hatzifotiadou (CERN)

International Video Conference:

Comparison of liver case planning (3)

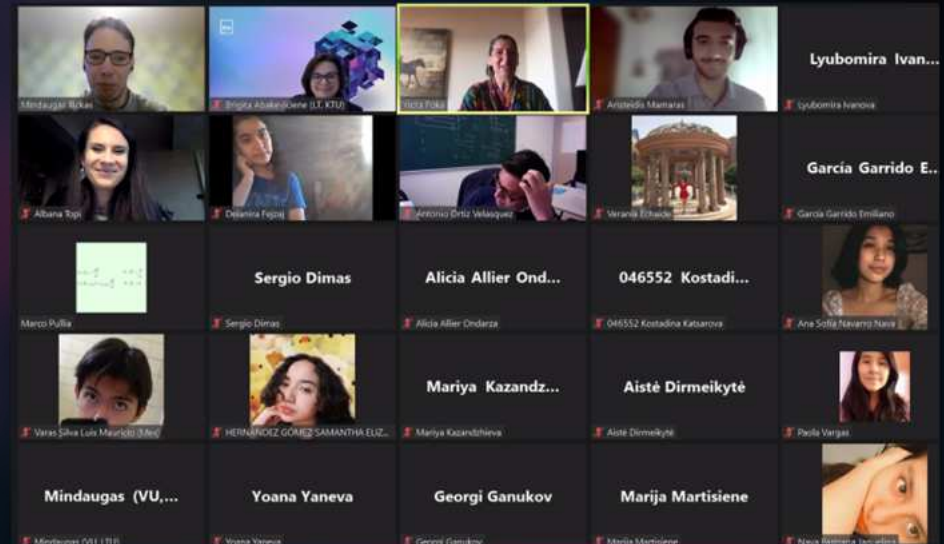
ktu 1922

The geometry of the irradiation fields (0°, 270°, 180°) **PROTONS** N The geometry of the irradiation fields (0°, 270°, 180°) **CARBON IONS**



Case 3 Case 4

A comparison of the third and fourth plans shows a higher dose distribution in the fields used for protons and a lower dose distribution for carbon ions.



Mindaugas Ilickas

KTU, Master degree student of medical physics



Dr. Marco Pullia

Organizing committee:

Dr. Brigita Abakevičienė (KTU)
Dr. Aušra Kynienė (VU)
Dr. Jurgita Laurikaitienė (KTU)
Dr. Andrius Juodagalvis (VU)
Dr. Aurelijus Rinkevičius (VU)
Mindaugas Macijauskas (VU)
PhD Mindaugas Ilickas (KTU)
Dr. Jurgita Čyvienė (KTU)
Dr. Evelina Jaselskė (KTU)
Prof. Diana Adlienė (KTU)
Dr. Benas Gabrielius Urbonavičius (KTU)
Dr. Reda Čerapaitė-Trušinskienė (LSMU)

Moderators of the event:



**Assoc. Prof. Dr. Brigita
Abakevičienė**

Kaunas University of Technology, Faculty of
Mathematics and Natural Sciences

Institute of Materials Sciences



**Assoc. Prof. Dr. Aušra
Kynienė**

Vilnius University, Faculty of Physics

International CMS Masterclass

30th March, 2022

<https://indico.cern.ch/event/1139363/timetable/>



Branduolių ir
elementariųjų
dalelių fizikos
centras



**VILNIUS
TECH**
Vilniaus Gedimino
technikos universitetas



Lecturers:



dr. Brigita Abakevičienė
Kauno technologijos
universitetas



dr. Aurelijus Rinkevičius
Vilniaus universitetas



prof. Egidijus Norvaišas
Vilniaus universitetas



dokt. Marijus Ambrozas
Vilniaus universitetas



doc. dr. Aušra Kynienė
Vilniaus universitetas



dr. Aleksas Mazeliauskas
Europos branduolinių
mokslinių tyrimų
organizacija (CERN)



dr. Andrius Juodagalvis
Vilniaus universitetas

Sponsors:



Lithuanian Physical
Society



Science and Technology
Park of Physics Institute



Medical Physics
Society (Lithuania)



**Vilnius
universitetas**

Teacher Engagement and Outreach

October 10, 2022

Vilnius

Assoc. Prof. **Aušra Kynienė**

Vilnius University · Faculty of Physics · Experimental nuclear and particle physics center

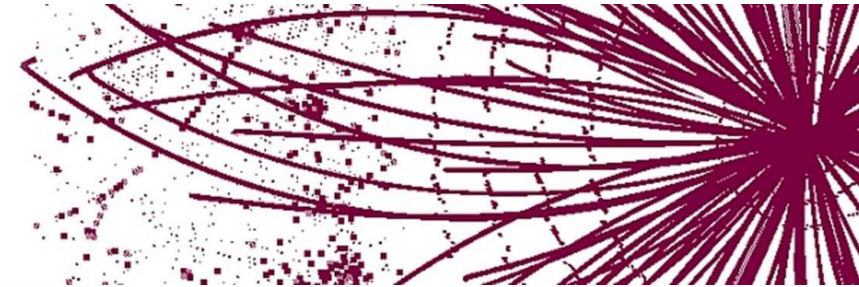
Assoc. Prof. **Brigita Abakevičienė**

Kaunas University of Technology · Faculty of Mathematics and Natural Sciences

Outreach group



Experimental
nuclear and
particle physics
center



Science Outreach and Public Engagement

- The Particle Physics Outreach Group aims to attract students to the field of physics, to motivate them by lectures on particle physics, and by simple and easy experiments
- The targeted audience is school children, teachers, and general public

A DAY AT THE CENTER



Whole day at the Center, with lectures and an experiments.

Reservation is needed

LECTURES



Lectures for students who have basics of the atomic physics. One lecture is 45 minutes long.

Lectures are ordered. Teleconference with CERN can be ordered if students from few schools reserves same time slot

EXPERIMENTAL OBSERVATION OF PARTICLE TRACKS



Particle tracks observation in a cloud chamber. This one hour duration experiment is suitable for all, even without prior knowledge about atomic or particle physics.

Reservation is needed

**Vilniaus
universitetas**

National Science festival “Spaceship Earth”

About: 2 hands-on activities and 2 lectures every years from 2015



CERN CMS experiment virtual tours

2014, 2016, 2017, 2018, 2019



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Teacher Engagement

- I. The **Baltic Teacher Programme 2021** (from 25-30 April 2021)
10 teachers were selected
The **Baltic Teacher Programme 2022** (*from 3-9 April 2022*)
Cancelled due to COVID-19

The Baltic Teacher Programme 2023 will take place from 23-28 April 2023.

- Lectures, on-site visits, exhibitions, and hands-on workshops will introduce its participants to cutting-edge particle physics. Participants will return to Lithuania as ambassadors who will pass on new physics trends to a new generation of physicists, engineers, IT professionals...
- Current status: creating a registration environment

II. ***Teaching of modern physics is reinforced in the updated secondary and primary school curricula***

III. ***Initial activities with pupils in STEM centres developed***

IV. ***A "Modern Physics in School" qualification programme for teachers to implement new curricula is proposed***

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THANK YOU!!!



cern@ff.vu.lt