

Estonian participation in the CERN programmes

A photograph of a vast field of sunflowers in the foreground, their bright yellow petals and green stems filling the frame. In the background, the iconic CERN Globe of Science and Innovation is illuminated from within, its glass and steel structure glowing against the darkening sky. The globe is surrounded by a few streetlights and the faint outlines of buildings, with mountains visible in the distance.

Mait Müntel

Estonian Teachers Programme 2012
19. okt 2012

Участие Эстонии в программах CERN

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Mait Müntel

Estonian Teachers Programme 2012
19. okt 2012

Eesti osalemine CERNi programmides

A photograph of a vast field of sunflowers in the foreground, their bright yellow petals and green stems filling the frame. In the background, the iconic CERN Globe of Science and Innovation is visible, its illuminated glass and steel structure glowing against the dark sky. The globe is surrounded by a few streetlights and the faint outlines of buildings, with mountains visible in the distance.

Mait Müntel

Estonian Teachers Programme 2012
19. okt 2012

Eesti osakestefüüsikute teadusrühm

- ~15 teadlast, rühma juht prof. Martti Raidal
- **Millega tegeleme:**
 - Eksperimentaalne osakestefüüsika (CMS @ CERN)
 - Teoreetiline osakestefüüsika: neutriinofüüsika, leptogenees, tumeaine mudelid jms
 - Astro-osakestefüüsika: kosmiliste kiirte füüsika, tumeaine otsimine kosmiliste kiirte abil jms
 - Infotehnoloogia osakestefüüsika jaoks
- **Eestis asume Tallinnas, KBFI-s**
- **Meil on ühine **tippkeskus** Tõravere kosmoloogidega (J. Einasto)**





1995

2000

2005

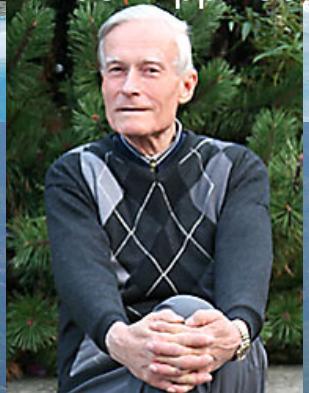
2010

2012



National Institute of
Chemical Physics and Biophysics

Endel Lippmaa



Memorandum of
Understanding

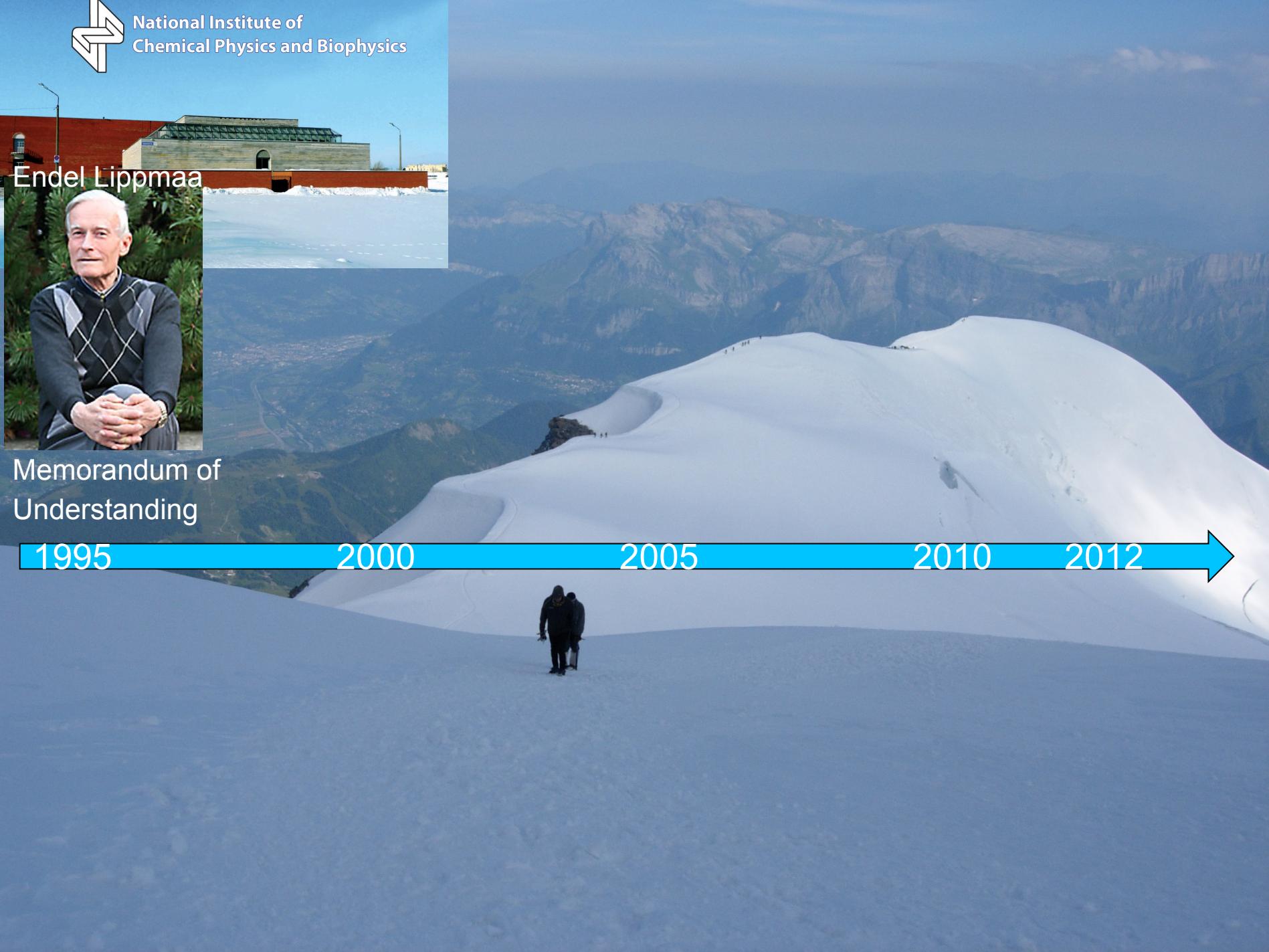
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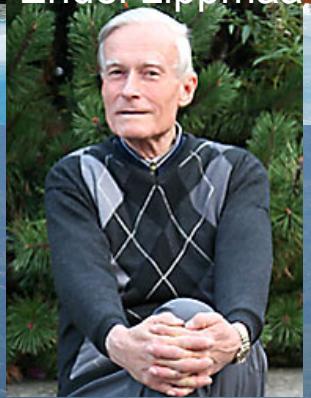
2012





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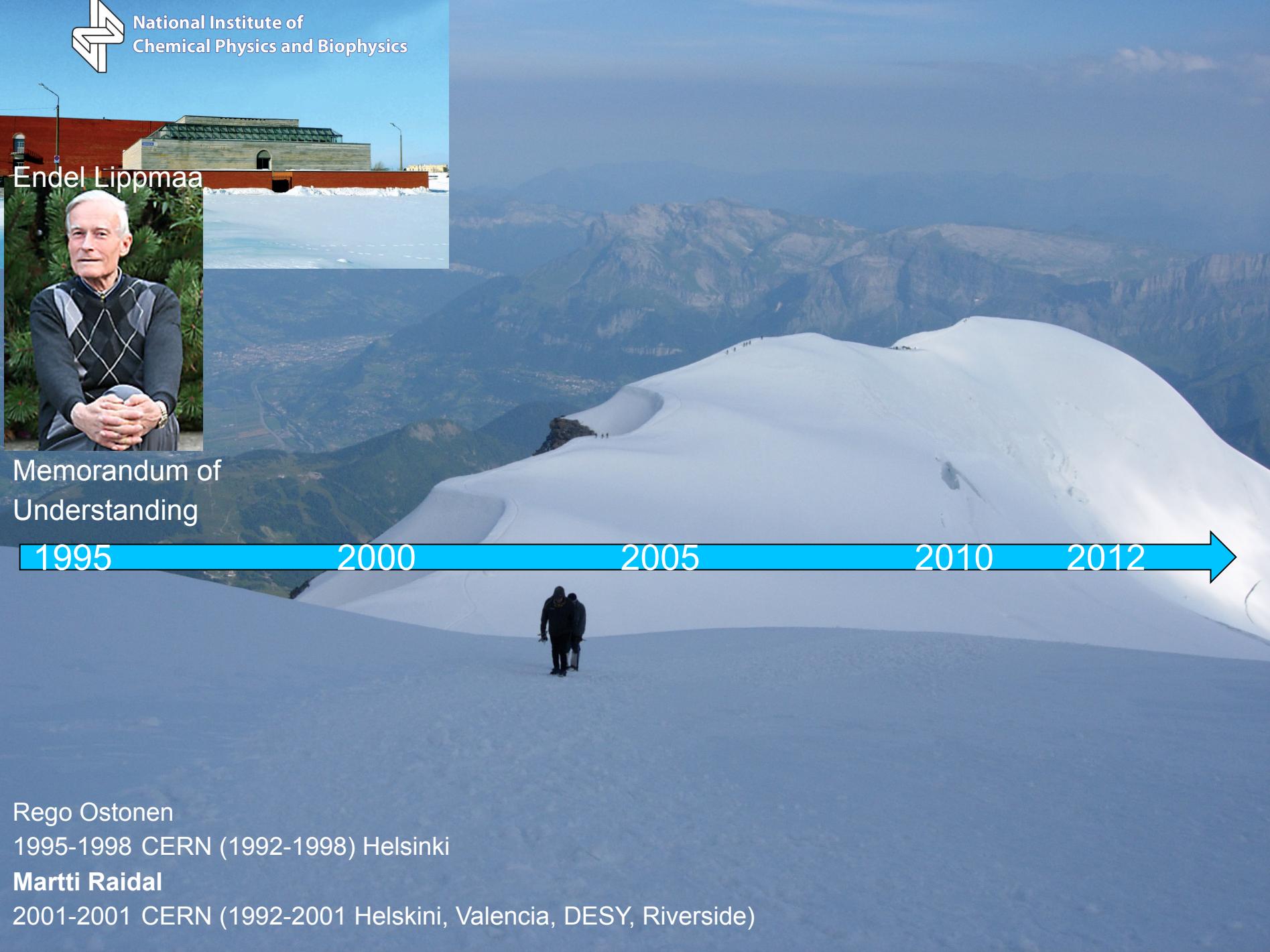


Rego Ostonen

1995-1998 CERN (1992-1998) Helsinki

Martti Raidal

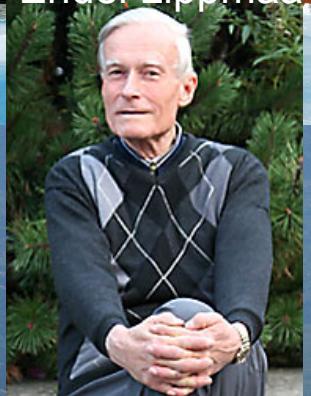
2001-2001 CERN (1992-2001 Helsinki, Valencia, DESY, Riverside)





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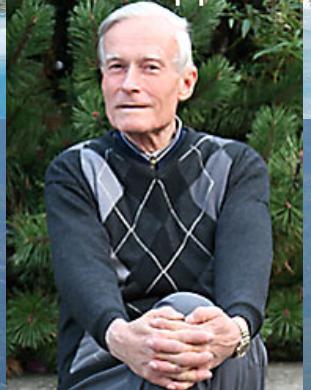
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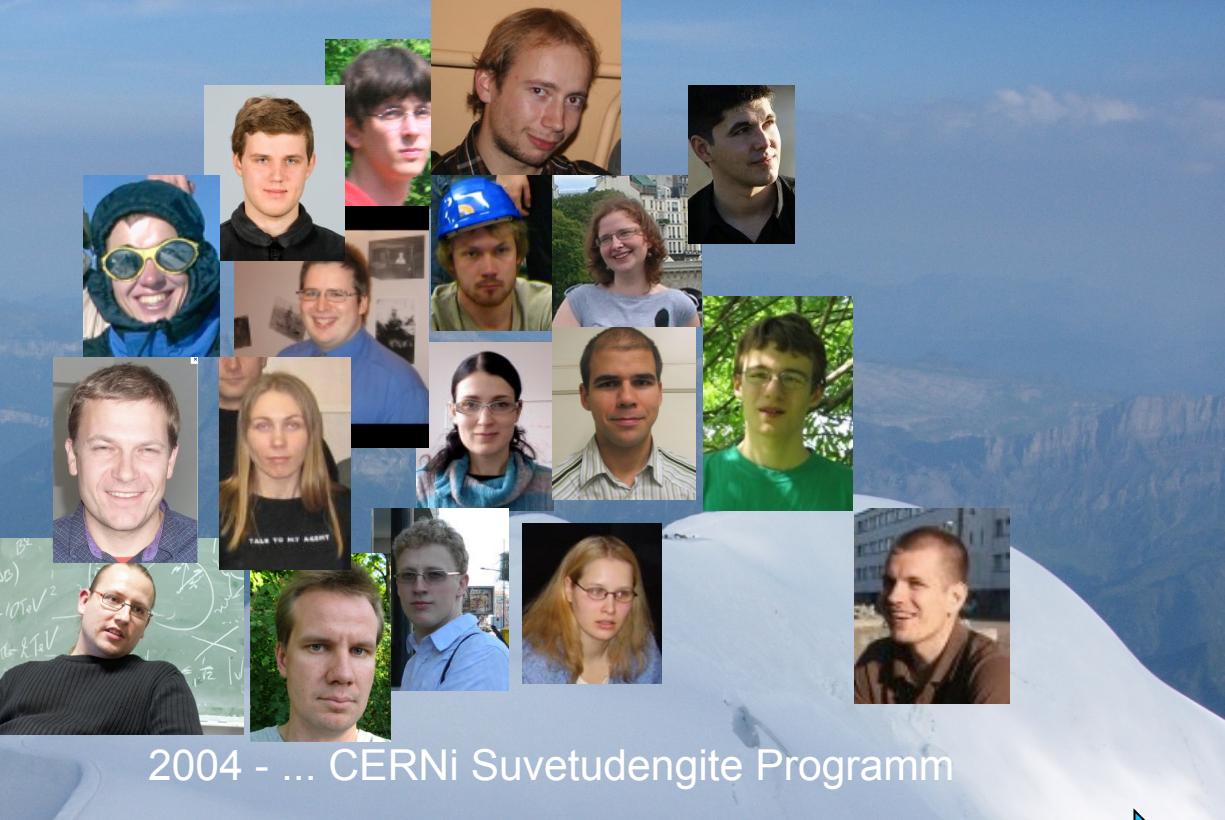
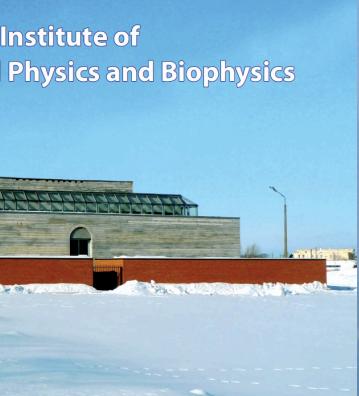
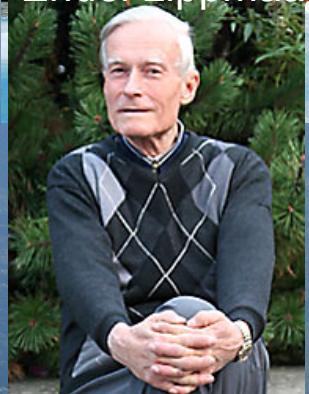
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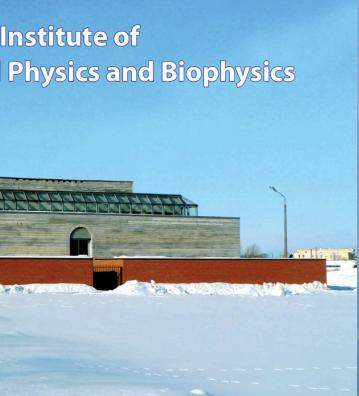
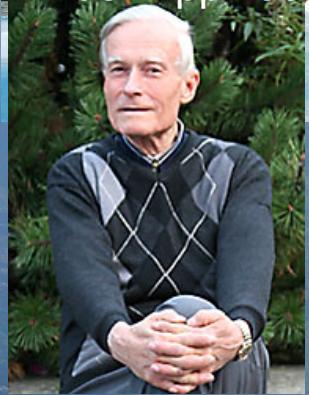
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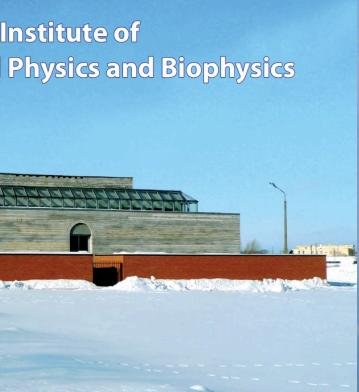
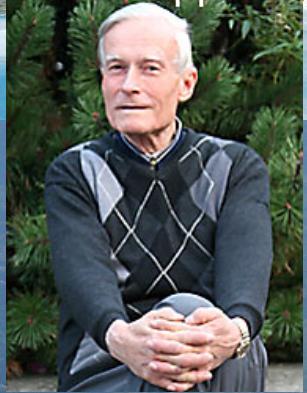
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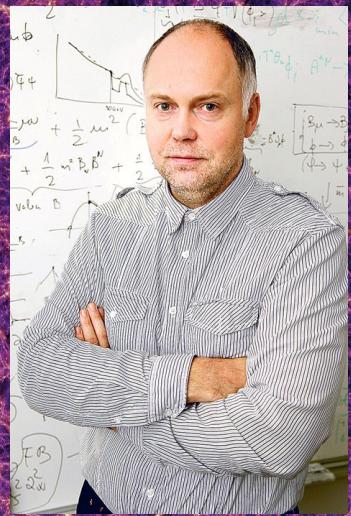
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2011 - ...

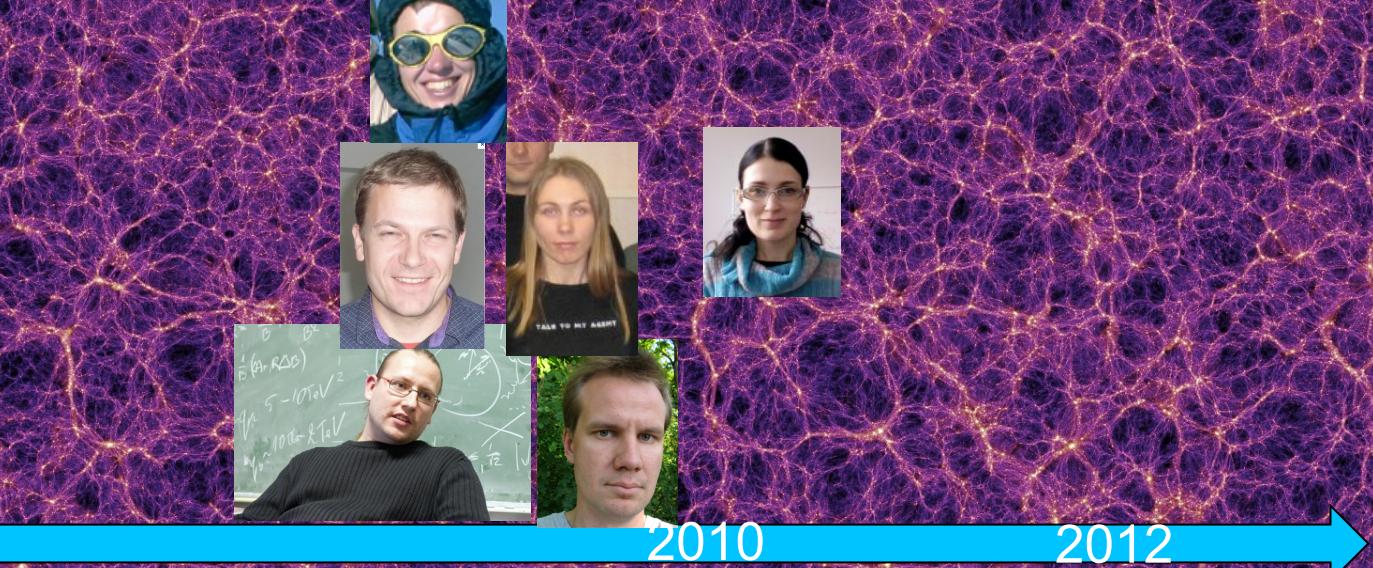
CERNi õpetajate programm



Meie töörühm



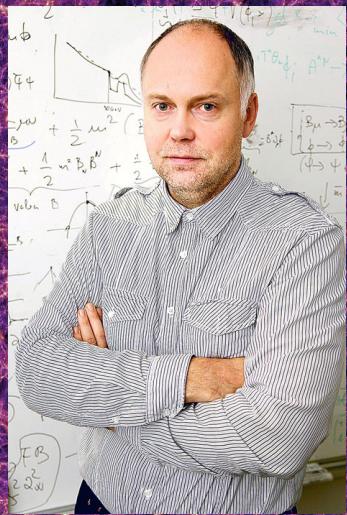
2005



2012

Professor:
Martti Raidal

Meie töörühm

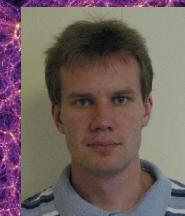
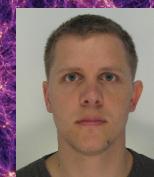


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Professor:
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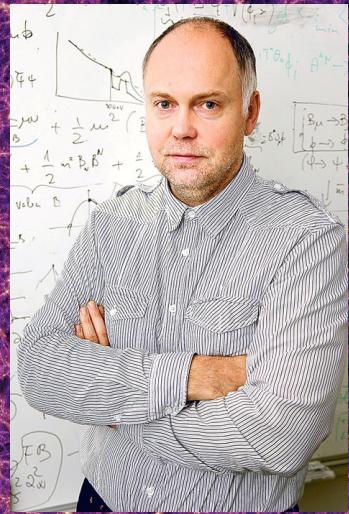
PhD kaitsmised:
Andi Hektor
Mario Kadastik
Kristjan Kannike
Mait Müntel
Liis Rebane



2010

2012

Meie töörühm



2005

järeldoktorid:

Marco Patriarca

Yuji Kajiyama

Antonio Racioppi

2010

2012

Professor:

Martti Raidal



PhD kaitsmised:

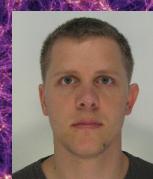
Andi Hektor

Mario Kadastik

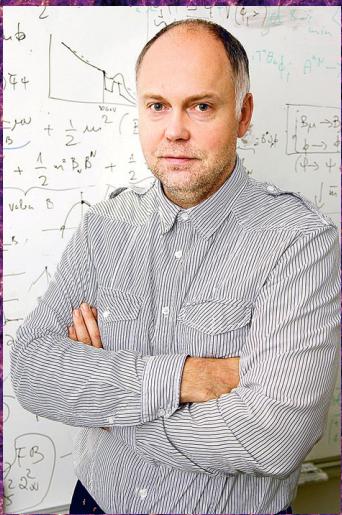
Kristjan Kannike

Mait Müntel

Liis Rebane



Meie töörühm

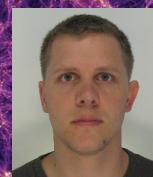


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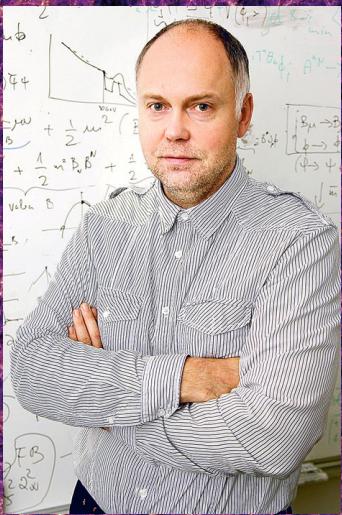


tippteadlased:
Alessandro Strumia
Andrea Giammanco
Emidio Gabrielli

2012



Meie töörühm

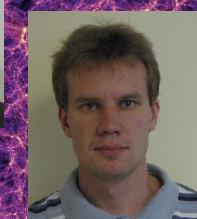
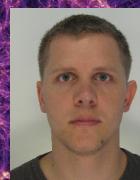


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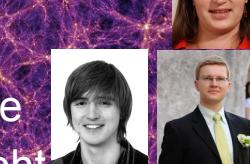
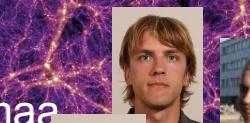
2010



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Andrea Giammanco
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2012



Tudengid:
Marion Murumaa
Joosep Pata
Andres Tiko
Siim Ainsaar
Hardi Veermäe
Morten Piibeleht

An aerial photograph showing the large circular LHC accelerator ring and the surrounding CERN facility in a rural, hilly area. The image is overlaid with several white circles of decreasing size, starting from the top left and moving towards the bottom right, creating a sense of motion or focus.

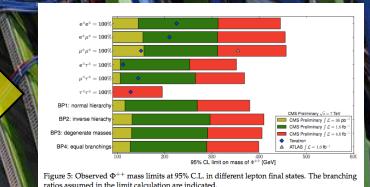
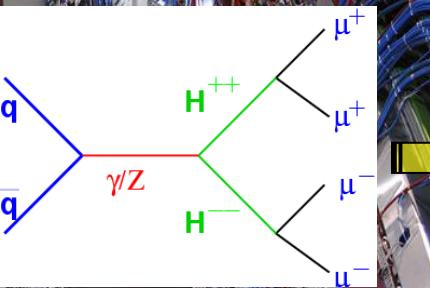
CERN & meie töörühm

- CMS eksperiment
arvutuskeskus
teooria

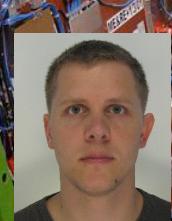
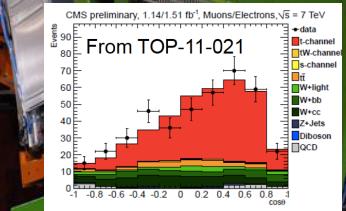
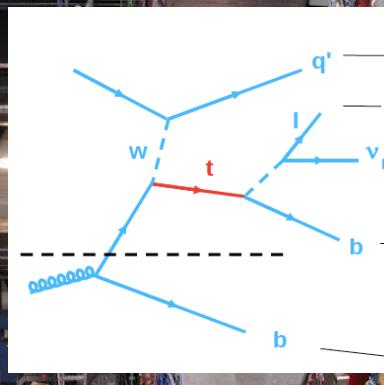
Oleme osalised CMS eksperimentis:



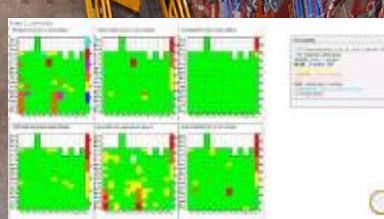
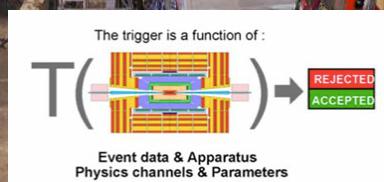
Topeltlaetud Higgs



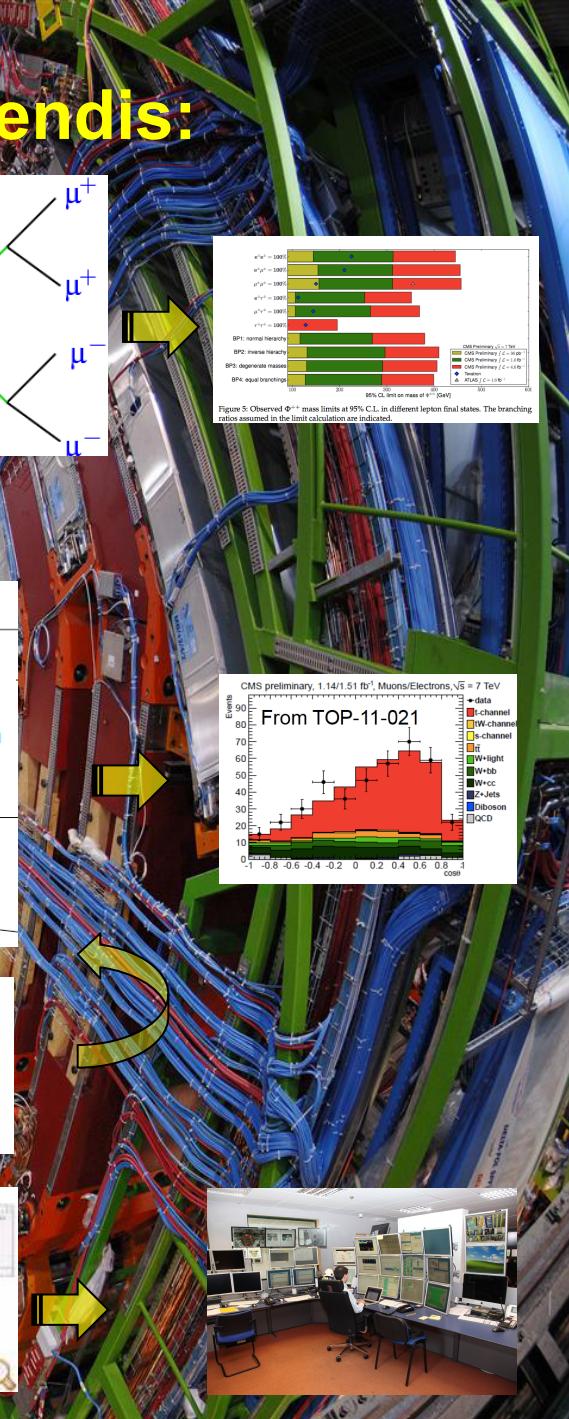
Single Top



Trigger



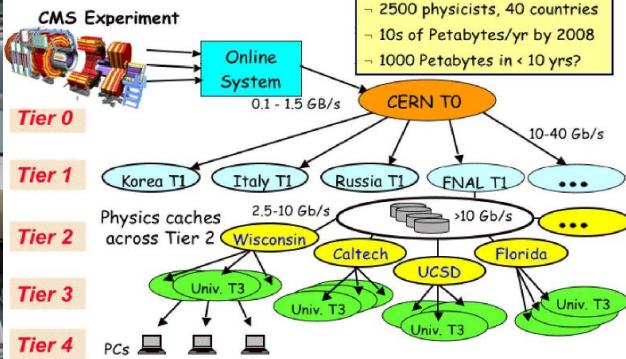
DQM



KBFI arvutuskeskus "Estonian Tier 2"



CMS Global Data Grid



Asukoht Tallinn (Mustamäe)

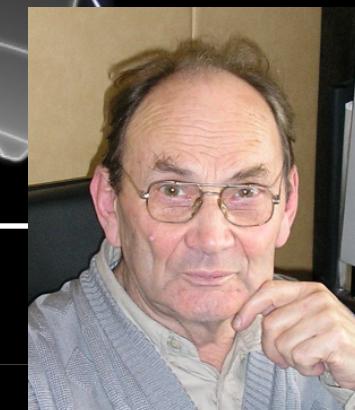
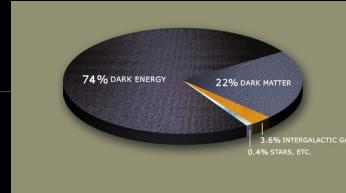
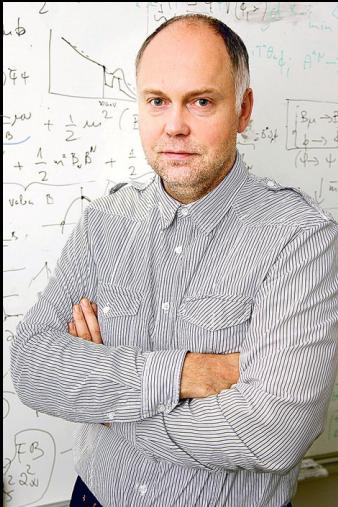
- 2005 **Balti Grid I (VI Euroopa raamprogramm)**
- 2007 **KBFI & CERNi koostöö**
- 2008 **Balti Grid II (VII Euroopa raamprogramm)**
- 2009 **EGI (European Grid Initiative)**
- 2010 **ETAIS (Eesti teadusarvutuste Infrastruktuur)**



"Estonian Tier 2" praegu:

- 5300 tuuma (cores)**
- 2000 TB (storage)**
- 10% eesti interneti liiklusest**

Estonian Tier 2 – üks suuremaid Tier 2-sid maailmas



Suur Pauk!



Universumi
sünd



13.7 miljr. aastat

10^{28} cm



A wide-angle landscape photograph of a mountain range. The upper half of the image shows majestic peaks covered in white snow against a clear, vibrant blue sky. A single, wispy white cloud is visible above the central peak. Below the snowline, the mountains transition into dark, rugged slopes. The base of the mountains is obscured by a dense forest of dark green trees. In the lower-left foreground, there are patches of bright green grass and small, scattered buildings, possibly a ski resort or a mountain town.

Aitäh!