



Superconducting magnet core fixation and alignment system

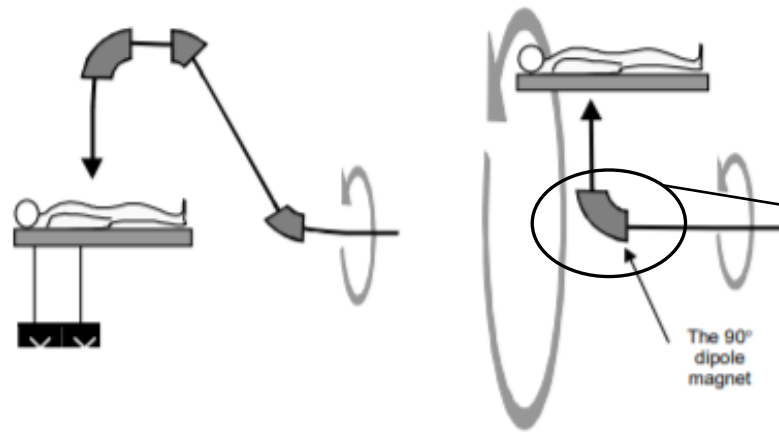
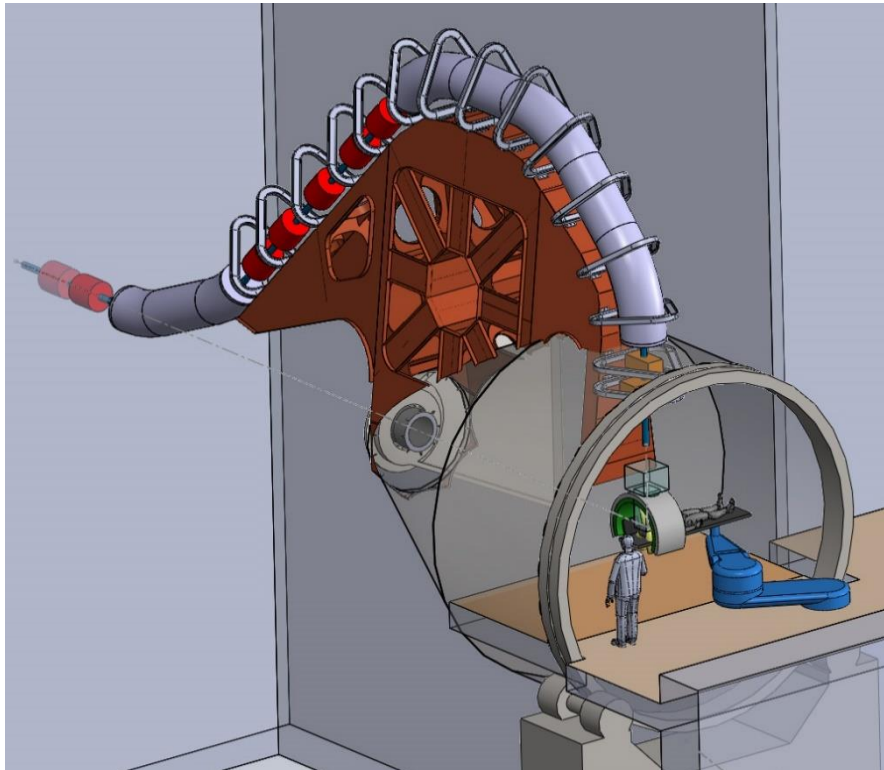
Supervisors: Dr. Diego Perini (CERN); Prof. Toms Torims (RTU)

JĀNIS VILCĀNS

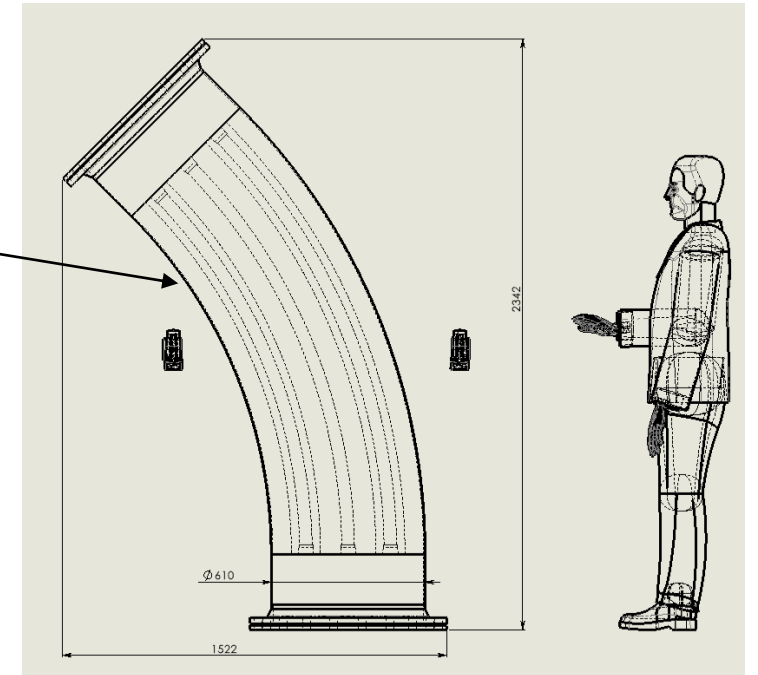


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Development Of The Rotational (Mobile) Cryostat System For The Superconducting Magnets In The Hadron Therapy Installations



Rotating cryostats needed
Luca Piacentini.2020



Part Off HITRIplus Project, Task 7.5

Collaborative Work With Mechanical Design Team

Result validation in weakly meeting with experts.



UNIVERSITÀ
DEGLI STUDI
DI BRESCIA

Dr. Diego Perini

Dr. Luca Dasa

Dr. Maurizio Vretenar ATS-DO

Luca Piacentini

Jānis Vilcāns

Dr. Andris Ratkus

Prof. Toms Torims

Prof. Stefano Uberti



Dr. Marco Pullia

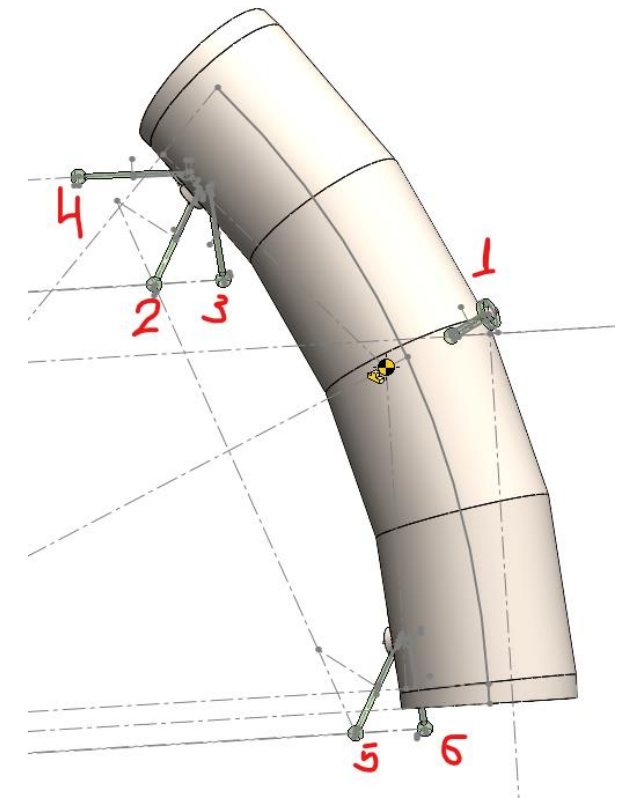
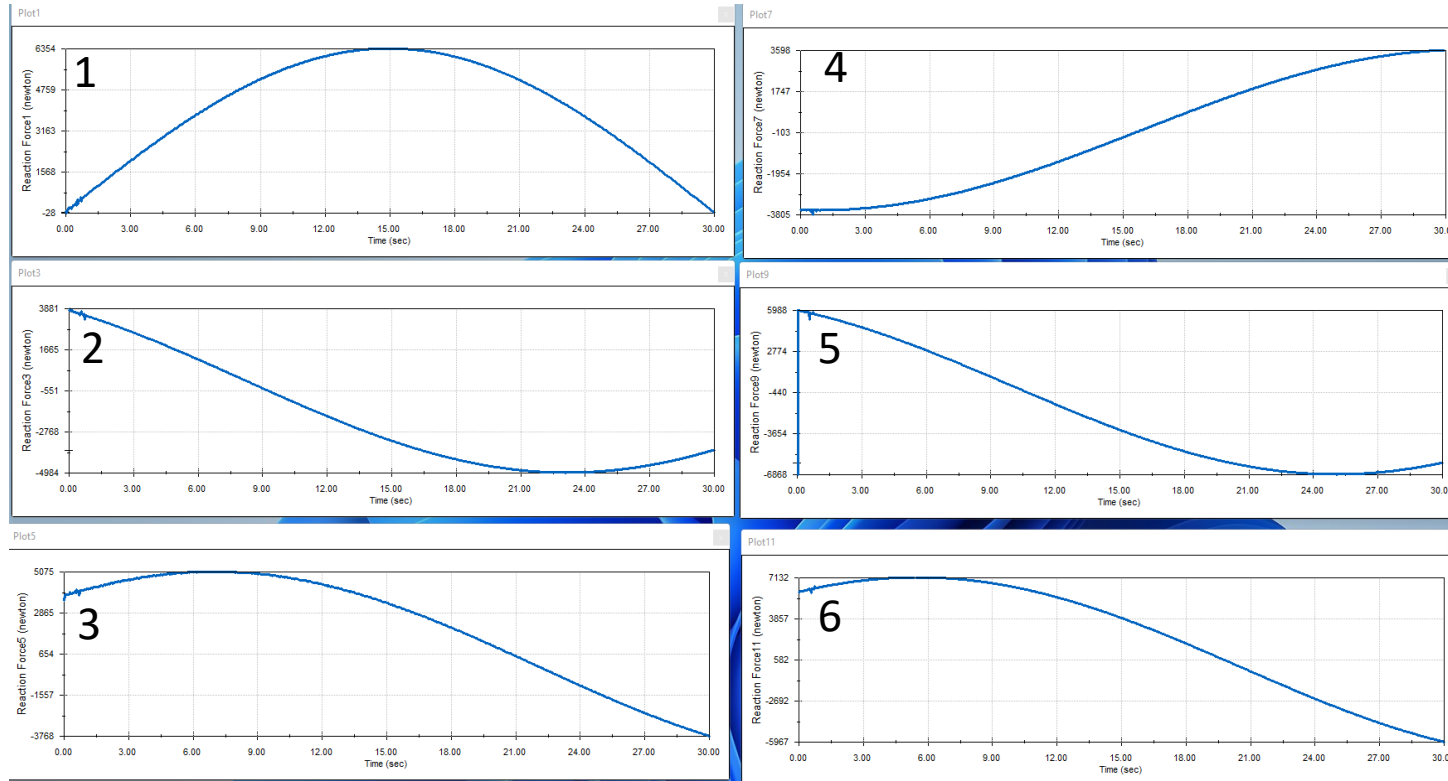


Development of the rotational (mobile) cryostat system for the superconducting magnets in the hadron therapy installations

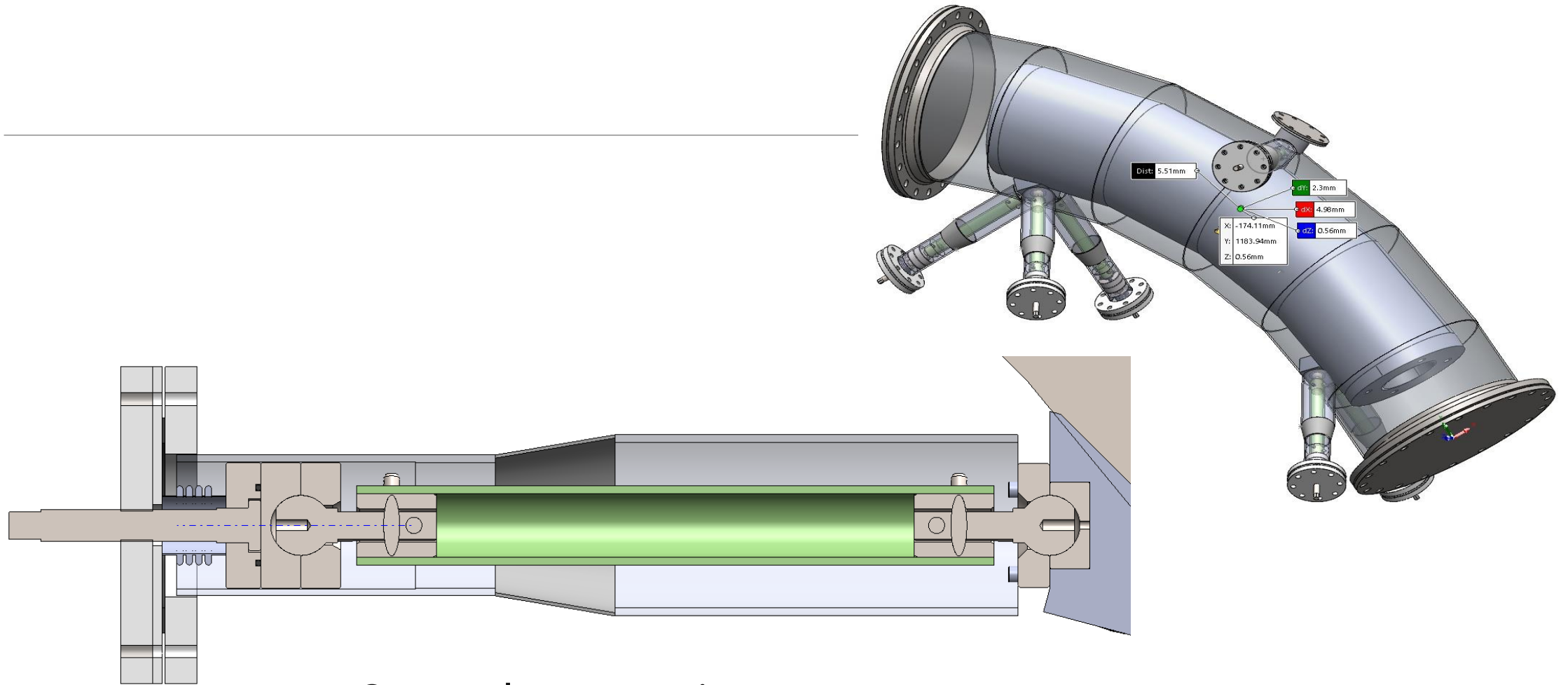
- ### System requirements
- Rotation 360°
fix 6 degree of freedom
 - Fine tuning possibility
 - Weight 1500 kg
 - Radiation resistant
 - Temperature 4...295 K
 - Low heat transfer
 - Beam line precision tolerace +- 1 mm
 - Cryo magnet shape
D=500 mm R=2200mm
Bended 45°
 - Vacuum 1 bar

- ### Research objectives
- Design
 - Reaction forces in all conditions
 - No over constrain
 - Most critical case
 - Thermal contractions
 - Ability to work in 295 K temperature
 - Ability to work in 4 K temperature
 - Material

Reaction forces on each rod according gantry rotational angle



Was done research on displacement at cooling

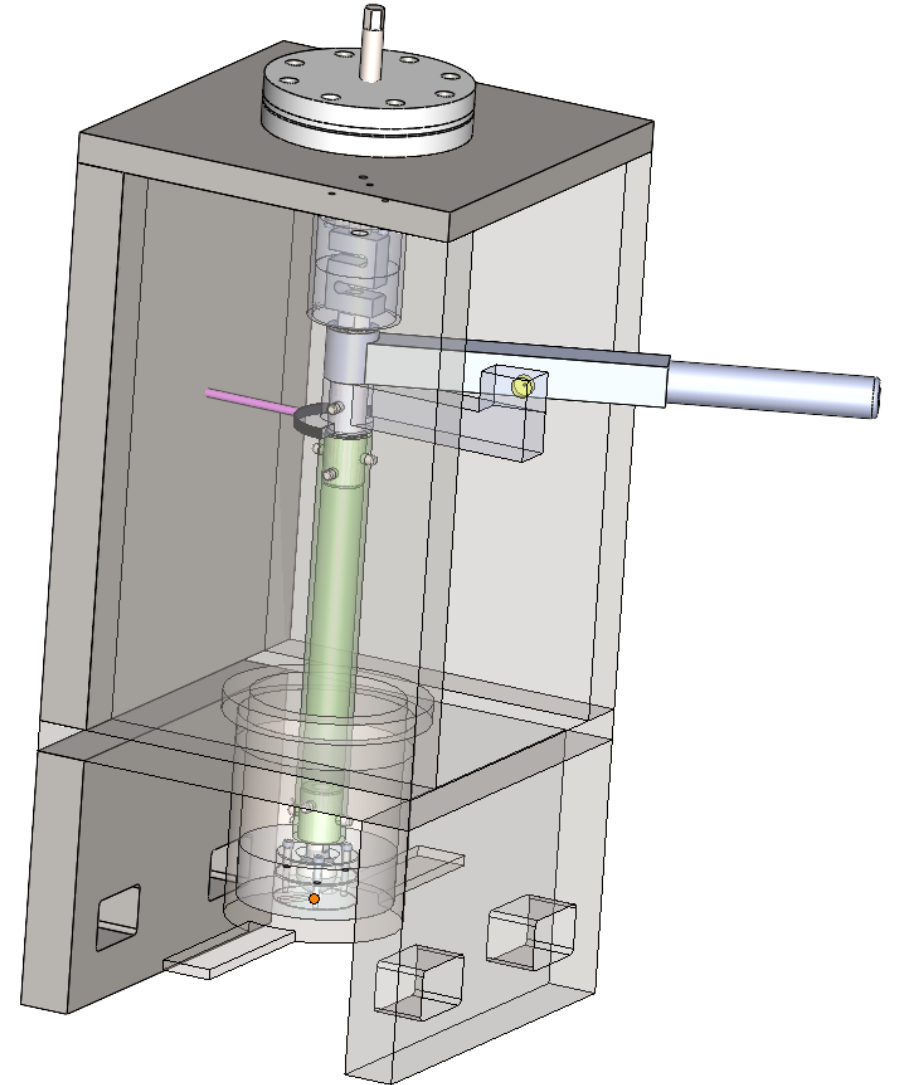


One rod crosssection

Future steps

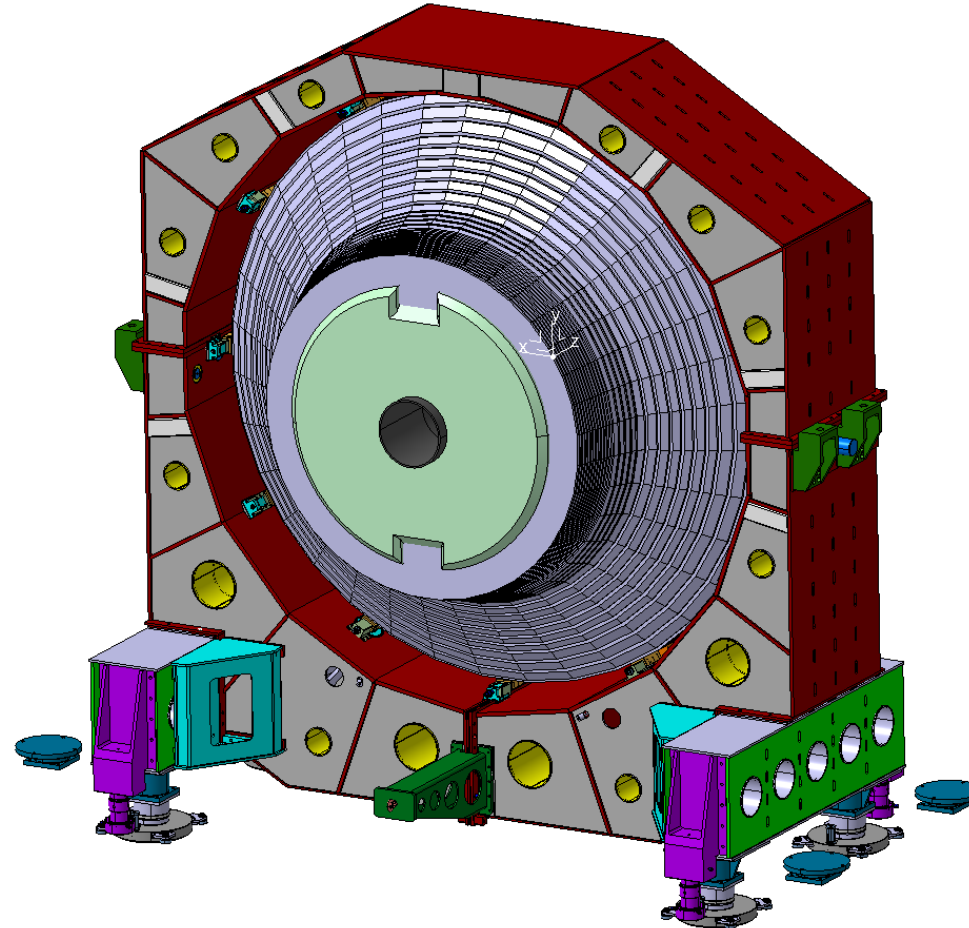
Design of experimental equipment to see work conditions:

- Rod
- Cold ball joint
- Hot ball joint



Other activities:

Design off CMS - HGCal installation, lifting equipment



Thank You for attention

janis.vilcans@cern.ch

