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CEXMECDIF

Yesterday's Dreams & Today's Reality

- *Strategy, ideas & experience - short review*
- *Iterations towards CEXMECDIF – short history*
- *CEXMECDIF by numbers & images*
- *CEXMECDIF impact on HPD activities*
- *Summer Student Program*
- *Outreach*

Mihai Petrovici, DFH/IFIN-HH, 05.02.2015

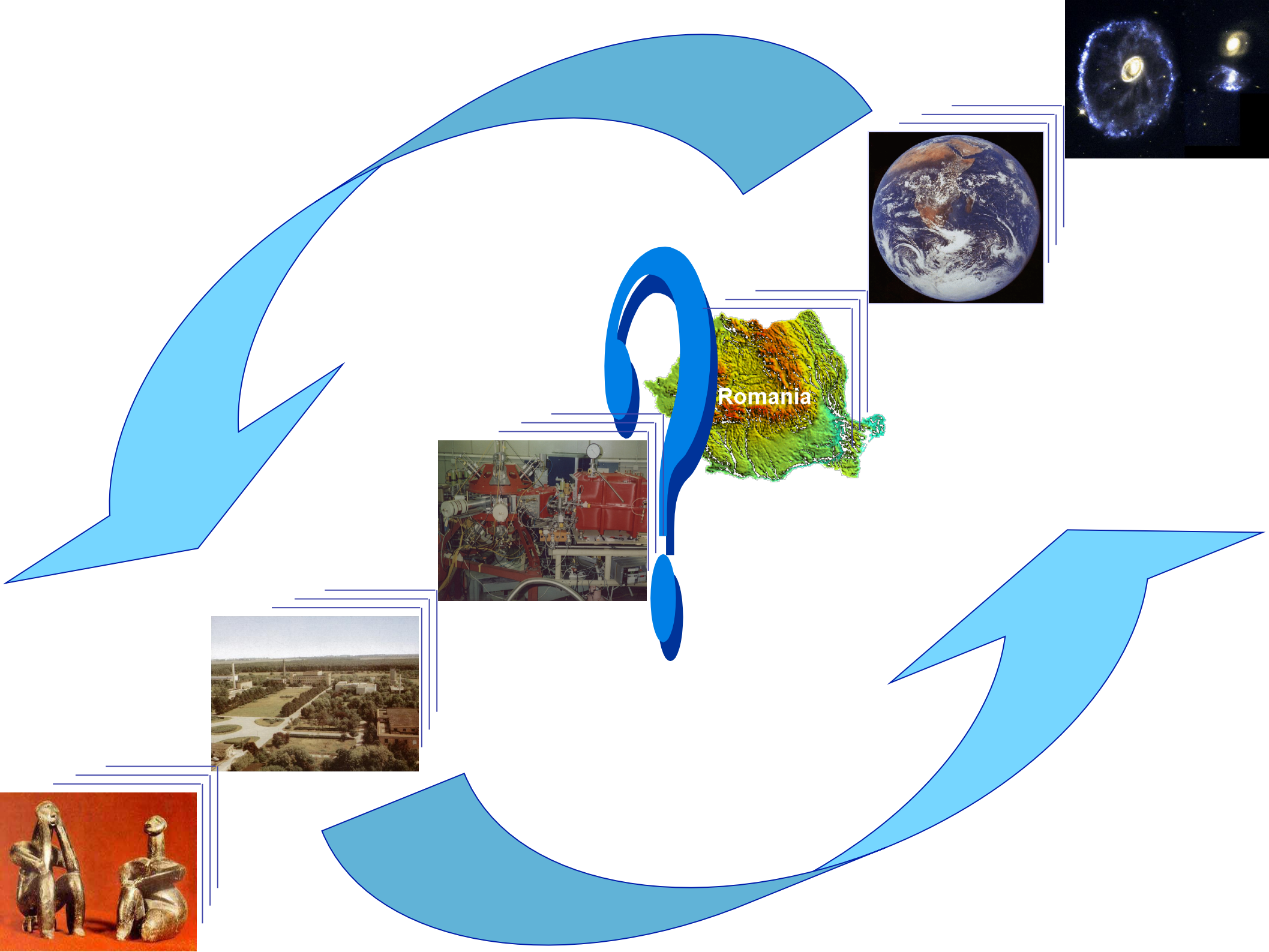
Don't start

vast projects

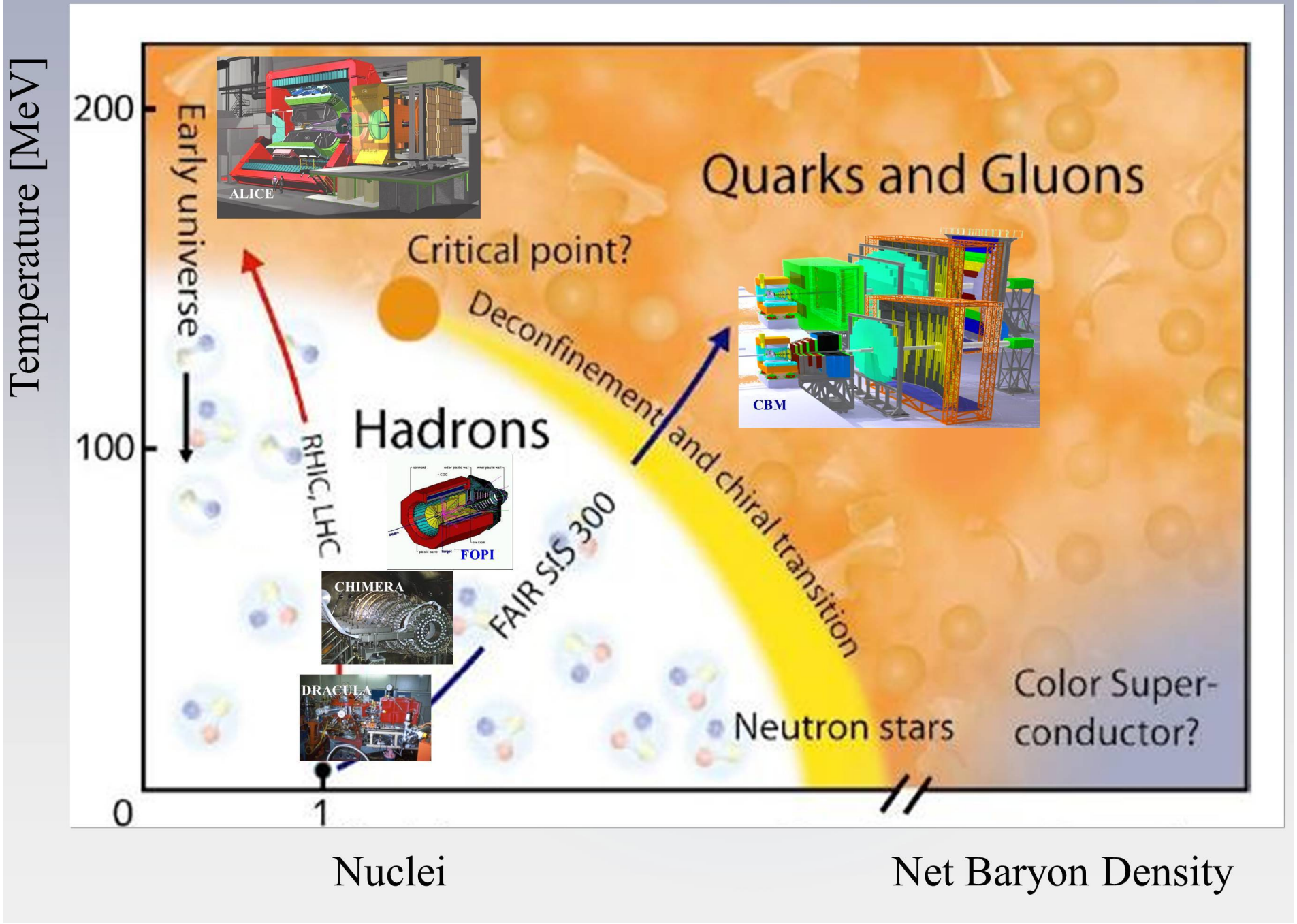
with

half vast ideas !

(& experience!)


Romania

Towards understanding the Phase Diagram



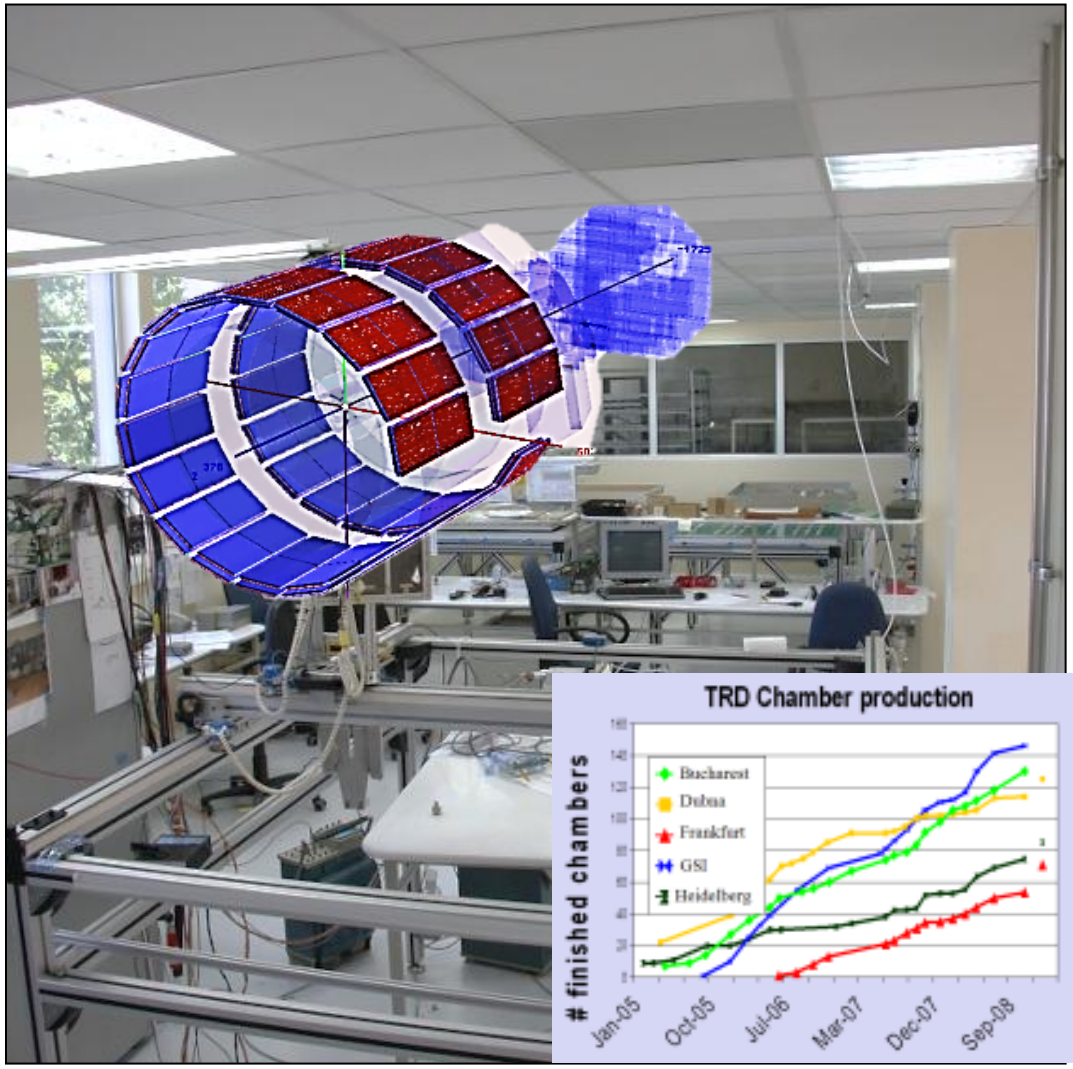
1999 – members of ALICE Collaboration @ CERN

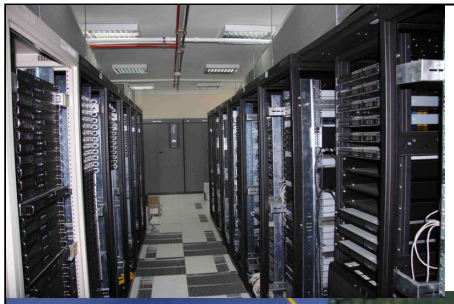
March 1999 – August 2003

- Struggle for financial support based on ALICE MoU

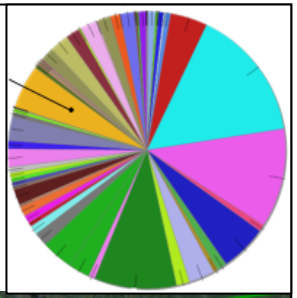
Summer – Autumn 2004

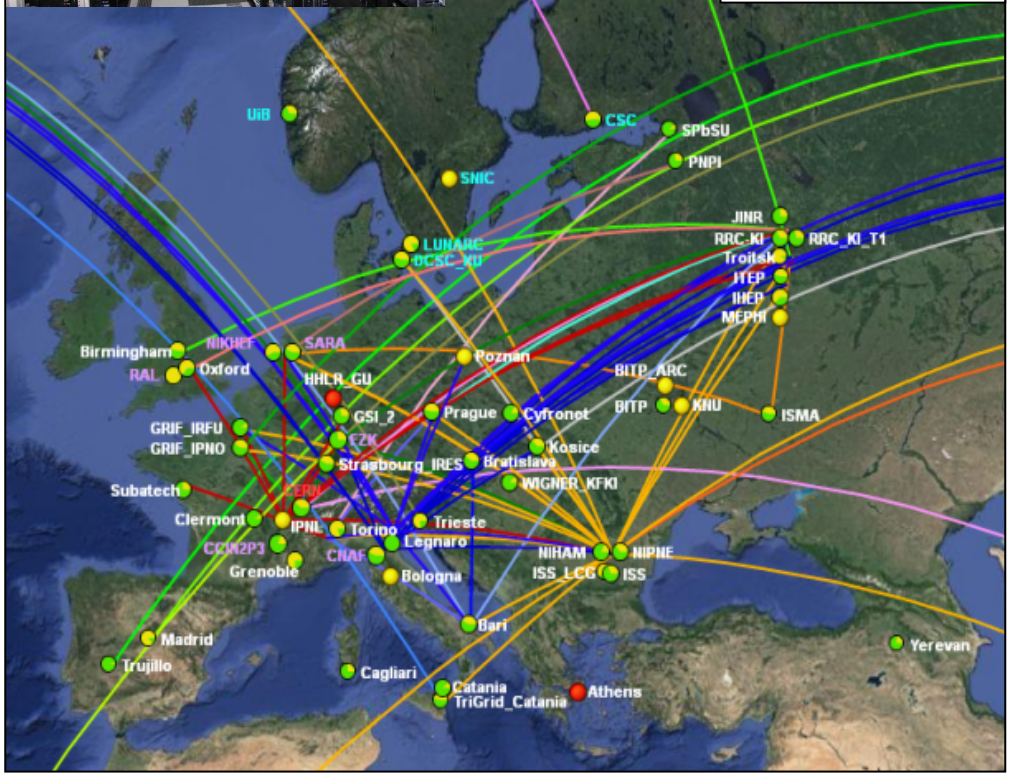
Ideas & Experience

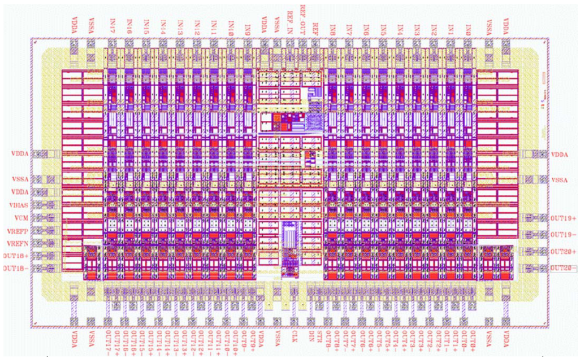




NIHAM
8%





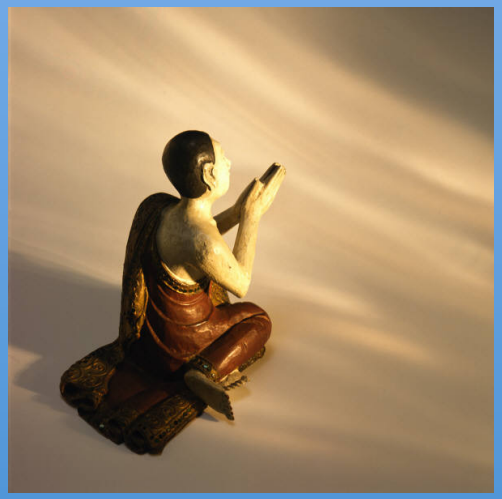



2004-2010

Coherent Approach in a Romanian Project of Advanced Topics in Hadron Physics by Integrated Activities

CARPATHIA

(submitted 2004)



10.05.2007

2.1 Scopul proiectului

In cadrul Centrului de Excelenta NIHAM, ca rezultat al efortului depus si al finantarii pe baza de proiecte castigate prin competitie in cadrul programului national PNCDI-I (CERES, Centre de excelenta, CORINT, CEEX) si al programului european FP6, urmand o strategie coerenta, au fost realizate: o infrastructura minima pentru activitati CD pentru sisteme avansate de detectie si electronica asociata si realizare de subansamble de detectie in cadrul marilor colaborari internationale din fizica nucleara actuala, o infrastructura de calcul distribuit, componenta a GRID-urilor internationale. Rezultatele stiintifice obtinute in activitati de calibrare, analiza, calcule si interpretari teoretice s-au concretizat in rezultate recunoscute pe plan international si publicate in reviste internationale cu factor mare de impact.

Scopul proiectului prezent este de dezvolta aceasta infrastructura in vederea cresterii pe termen lung a capacitatii de a participa la nivel vizibil si competitiv la marile colaborari internationale (ALICE-LHC si CBM-FAIR) care au ca tel final accesarea de informatii de fizica ce vor sta la baza maririi patrimoniului de cunostinte in domeniu . Existenta unei infrastructuri corespunzatoare va permite: extinderea activitatilor CD si contributia pe baze egale si competitive la activitatea de cunoastere in cadrul colaborarilor internationale, formarea si atragerea de tineri, de la studenti la postdoctoranzi, care doresc sa se intoarca in tara, migrarea de "know-how" si forta de munca calificata catre sectoare din economie.

10.05.2007

Obiectivele strategice ale proiectului proiectului

1. *Imbunatatirea infrastructurii stiintifice si tehnice existente pentru a mari capacitatea de abordare la nivel competitiv a noilor proiecte de mare anvergura lansate pe plan european, la care suntem parteneri*

2. *Intarirea capacitatii de implicare si conducere de proiecte din programele europene de cercetare-dezvoltare*

3. *Crearea unui cadru care sa faciliteze transferul de rezultate ale cercetarii fundamentale in domenii aplicative*

10.05.2007

2.2.3 Descrierea activitatilor

1. ***Amenajarea si modernizarea infrastructurii NIHAM existente***

2. ***Completarea dotarii cu echipamente pentru activitatile de cercetare din grupul NIHAM***

3. ***Marirea performantelor structurii de calcul distribuit NIHAM si a tehnicii de calcul***

CEXMECDIF – 22.01.2010

Obiectivele strategice ale proiectului:

1. ***Imbunatatirea infrastructurii stiintifice si tehnice existente*** *pentru a mari capacitatea de abordare la nivel vizibil si competitiv a proiectelor de mare anvergura pe plan european, la care suntem parteneri:* ***ALICE-LHC-CERN, CBM-FAIR***
   sau vom fi: ***LHeC – CERN***

2. ***Intarirea capacitatii de implicare si conducere de proiecte*** *din programele europene de cercetare-dezvoltare (**FP7**)*

3. ***Crearea unui cadru si climat de excelenta care sa faciliteze****:*
   - *activitatile de formare de tineri specialisti in domenii de varf stiintifice si tehnice*
   - *transferul de rezultate ale cercetarii fundamentale in domenii aplicative*

4. ***CEXMECDIF va duce la realizarea unuei componente romanesti a Retelei de Excelenta Europene in domeniul fizicii nucleare, obiectiv al strategiei pe termen lung la nivel european***

CEXMECDIF by figures

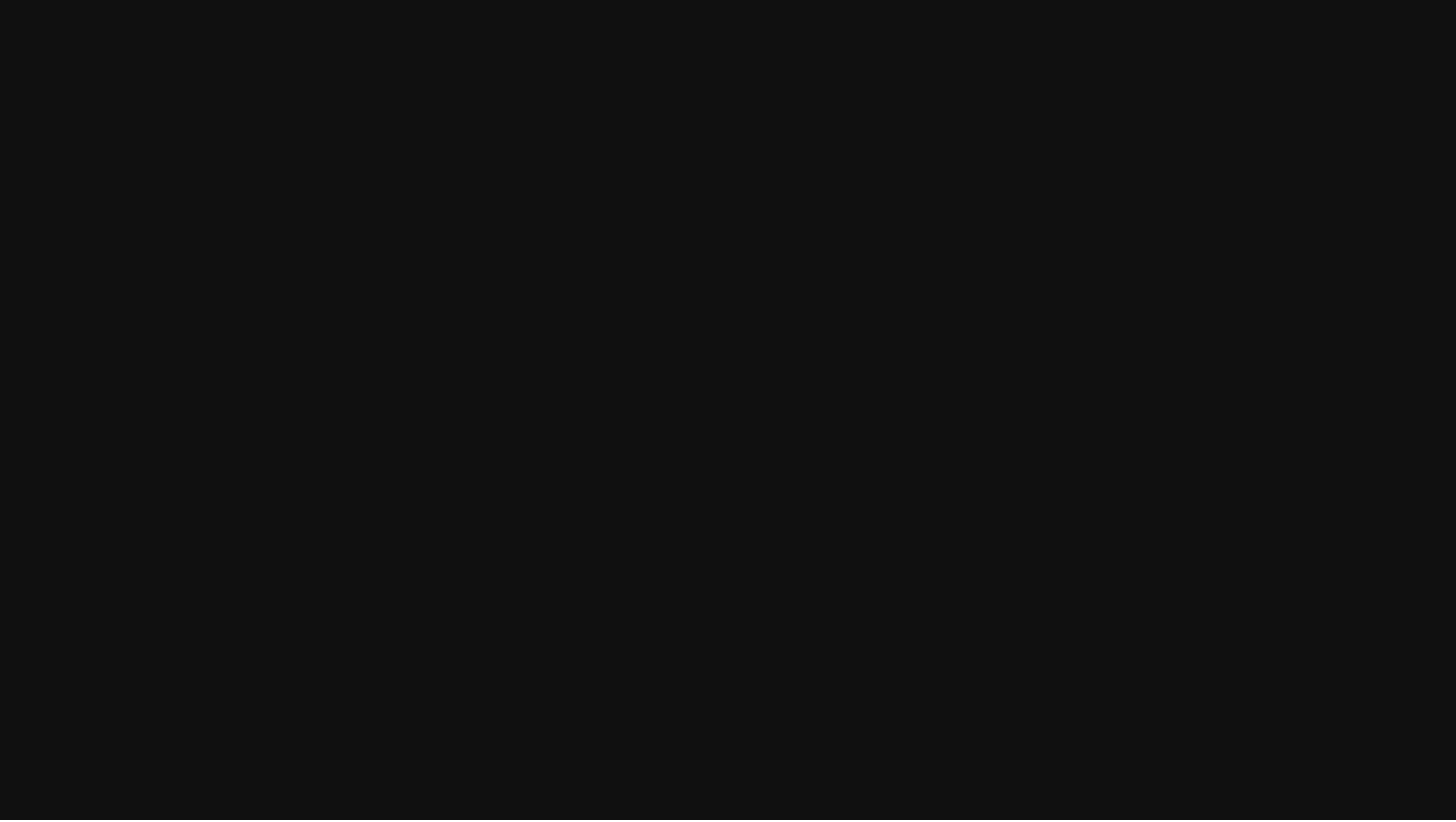
- 44 caiete de sarcini:

- 28 contracte
- 16 selectii de oferta

Nr. crt.	Denumire initiala achizitie	Denumire modificata a achizitiei	Anul 2011,2012 Valori cu TVA (cheltuit)
	C6 - CEXMECDIF		**7,607,907.16 lei**
	Constructie		1,707,111.72 lei
	Lucrarea de constructie		1,707,111.72 lei
	Constructie finalizata		1,707,111.72 lei
	Dotari		***5,900,795.44 lei***
1	Echipamente si aparatura de laborator: electronice, optice, balante	Cadru cu sursa NIM, generator de impulsuri, punte RLC portabila, cadru cu sursa VME, module VME si NIM, rack-uri,cadru su sursa Vme miniaturizata, osciloscop portabil, electrometru, punte RLC cu accesorii, modul VME multichanel Peak Sensing ADC, multimetre, microscop	817,212.14 lei
2	Masa de montaj cu protectie antivibratie	Masa de montaj cu protectie antivibratie +suporti masa, inchiriere autospeciala	38,959.22 lei
3	Sistem scanare detectori	Sistem scanare detectori, Comanda pozitii automate	99,701.59 lei
4	Hota curata cu flux de aer purificat		85,027.66 lei
5	Instalatie de spalare cu ultrasunete		
6	Strung universal cu comanda numerica	Strung universal cu comanda numerica, menghina	160,572.41 lei
7	Freza cu comanda numerica		123,464.32 lei
8	Instalatie pozitionare circuite SMD (microplacer)		105,772.00 lei
9	Manual printer tehnologie SMD		
10	Centru de date	Echipamente de calcul, Sistem de stocare date,Centru de date (amenajare), Module management, Sursa de Fe 55	1,884,225.59 lei
11	Calculatoare desktop		98,871.40 lei
12	Echipamente sala de conferinte si imprimante	Echipament videoconferinte,Tabla magnetica,Imprimante multifunctionale,Monitor LCD-ecran proiectie,Ploter A0, kit accesorii tabla, tabla conferinta, ecran proiectie,Proiectoare pentru sala multifunctionala,dispozitiv achizitie video, cabluri, rack-uri, si accesorii, prezentation scaler, procesor digital de semnal audio,microfoane	269,527.56 lei
13	Masina de strunjire combinata		60,704.20 lei
14	Instalatie multifunctionala pentru depuneri de straturi subtiri in vid	Instalatie multifunctionala pentru depuneri de straturi subtiri in vid 30%,Instalatie multifunctionala pentru depuneri de straturi subtiri in vid 70%,Controler de debit pt. pulverizare reactiva,Magneton de 2 '' cu ansamblu,Sistem de evaporare cu arc catodic,Turbopompa de 550 l/s, Sursa de alimentare aditionala de 600 WCC	724,711.24 lei
15	Echipament de calcul		822,176.31 lei
16	Stivuitor electric		49,352.00 lei
17	Mobilier general pentru laborator		107,984.66 lei
18	Echipamente de retea	Echipamente de retea fixa, Echipamente de retea fara fir, cablu telefonic exterior, adaptor 16 porturi ethernet	120,258.47 lei
19	Mobilier atelier mecanic		19,833.80 lei
20	Mobilier sala multifunctionala si birouri	Mobilier sala multifunctionala si birouri, jaluzele verticale, cuier umeras negru,Placute indicatoare	312,440.87 lei
	TOTAL		**5,900,795.44 lei**

CEXMECDIF
by images

21.10.2010 -13.09.2012

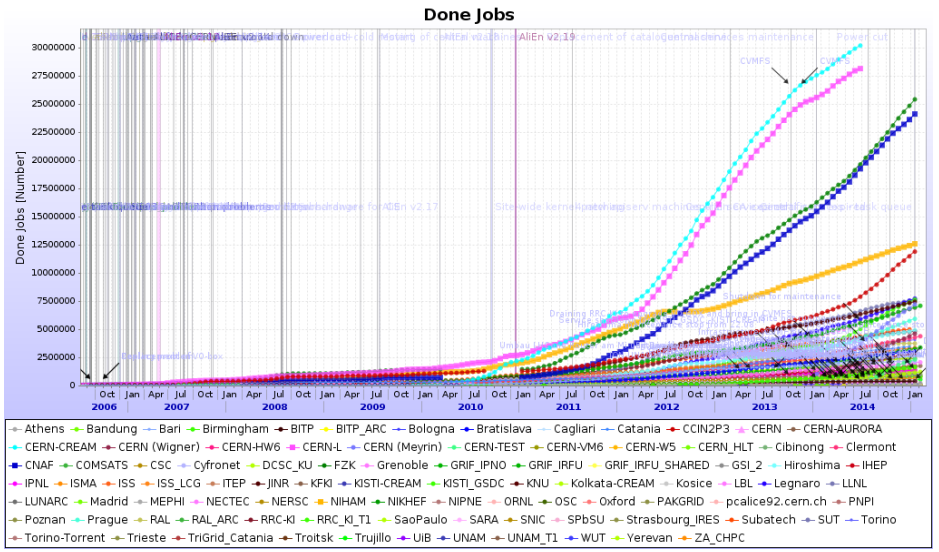


CEXMECDIF

by images

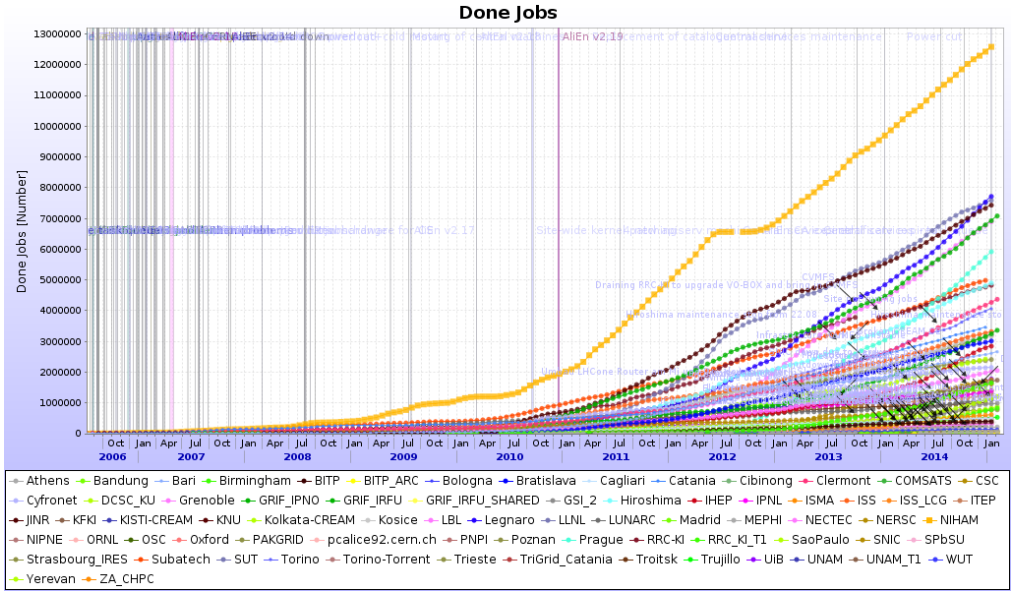
21.10.2010 -13.09.2012

CEXMECDIF - results



NIHAM – ALICE GRID

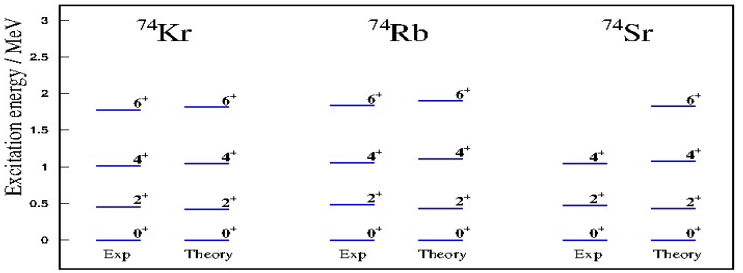
Niham Analysis Facility

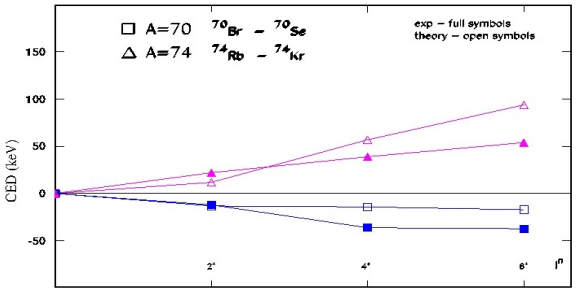


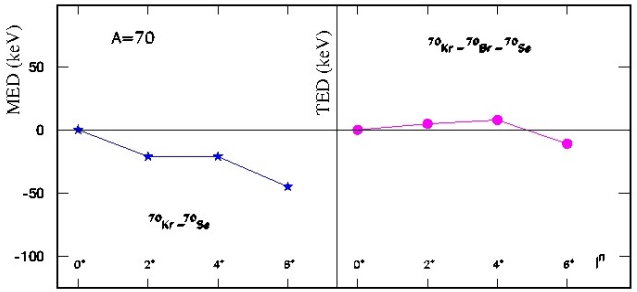
Fundamental symmetries and exotic nuclear phenomena within beyond-mean-field model

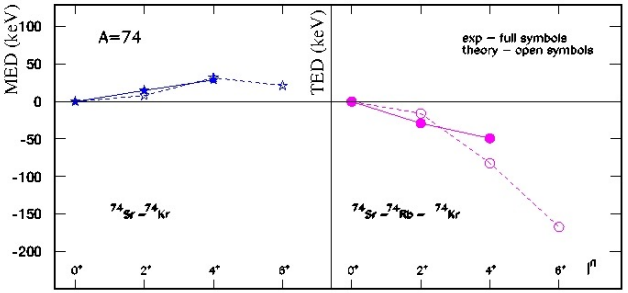
Isospin-symmetry breaking and shape coexistence in A~70 isovector triplets

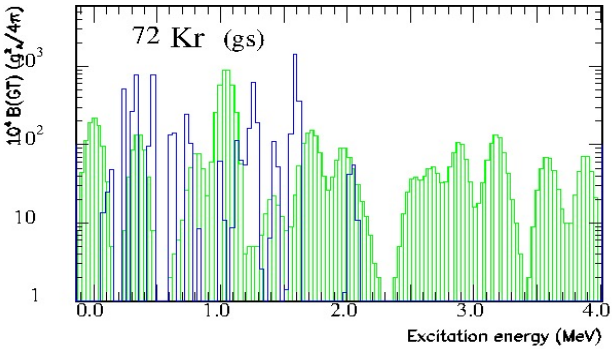
(realistic isospin nonconserving forces, competing T=0 & T=1 pairing correlations, symmetry projection before variation in realistic model spaces)

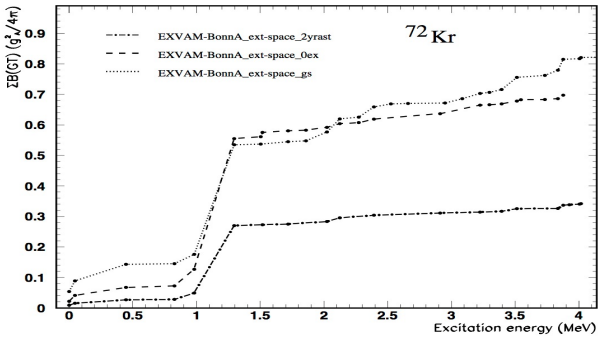


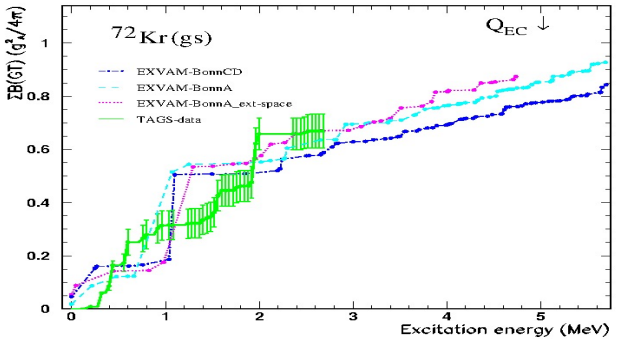






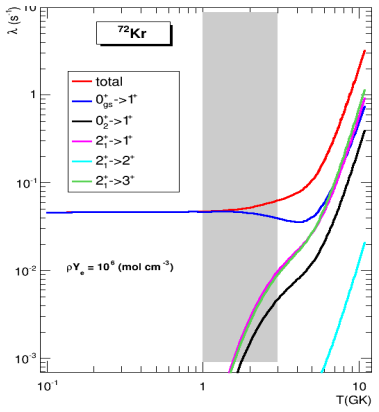


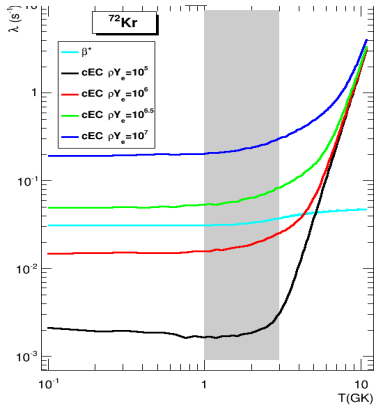


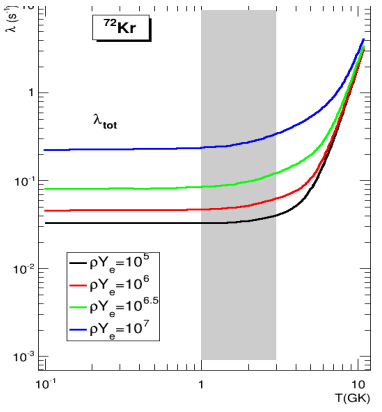


^{72}Kr waiting-point nucleus in X-ray burst environment

(Gamow-Teller strength distributions versus Total Absorption Spectrometer data, astrophysical scenarios considering β^+-decay and continuum Electron Capture)



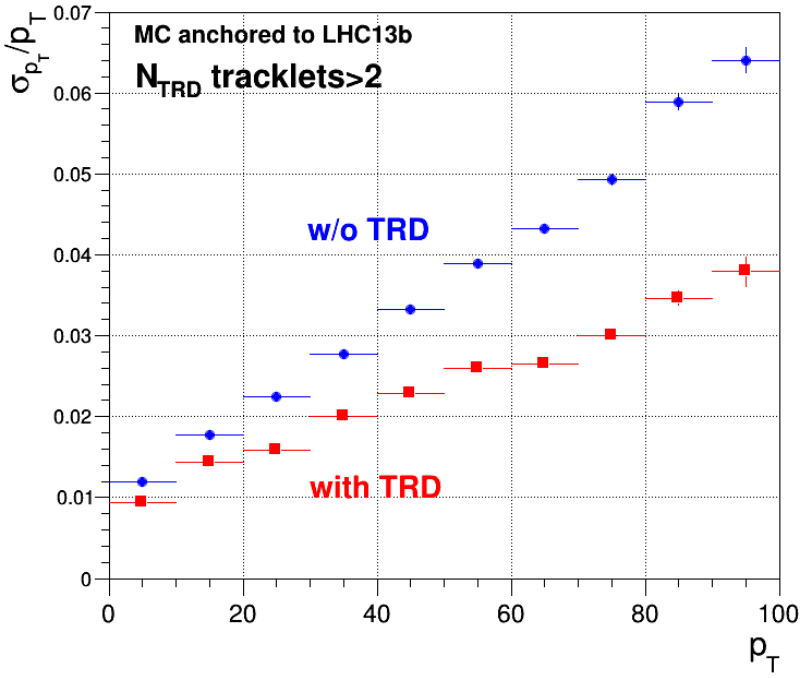




G. de Angelis, A. Petrovici et al., Phys. Rev. C85, 034320 (21012)
A. Petrovici, Phys. Rev. C85, 034337 (2012)
D. Jordan, A. Petrovici et al, Phys. Rev. C87, 044318 (2013)

Contributions in tracking, analysis & physics

TRD - tracking

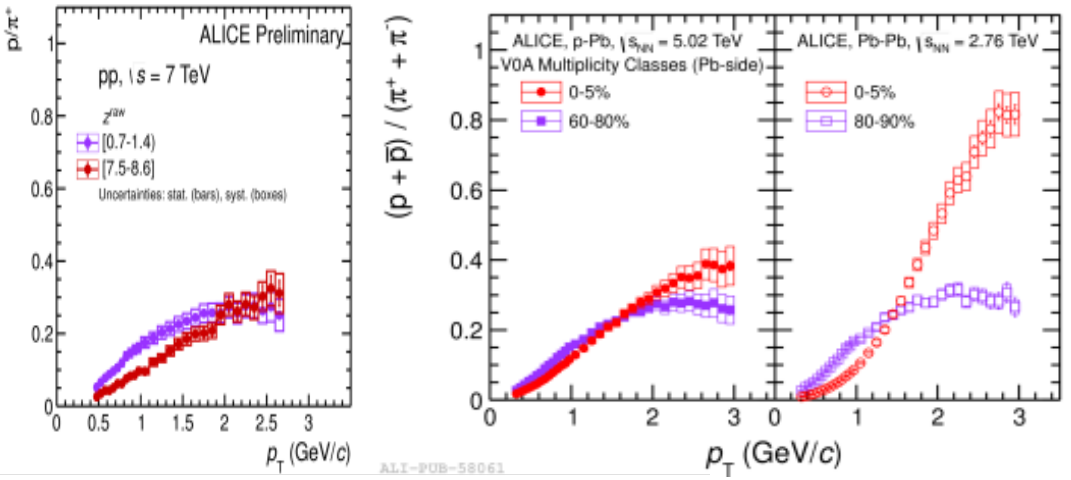


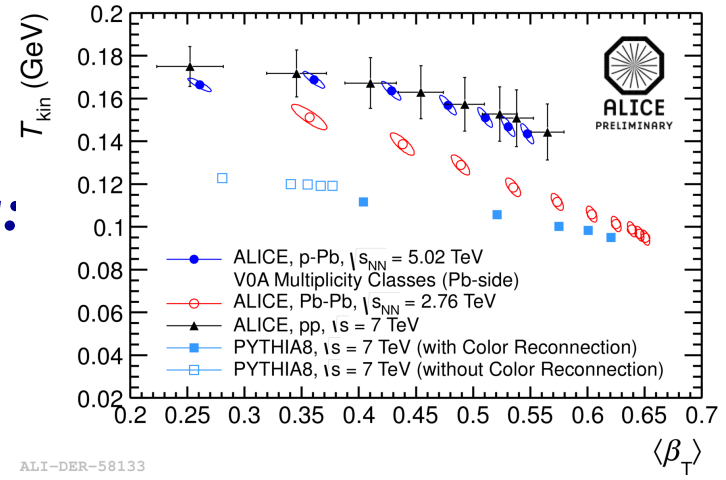
Including TRD in refit

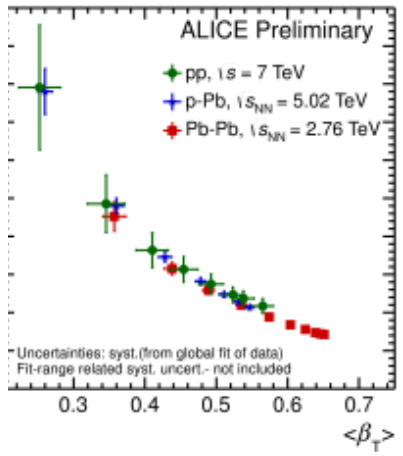
may improve p_T resolution by factor ~2

Analysis - Bayesian PID
- efficiencies, contaminations multiplicity dependence
- event shape global variables

Physics – proposed & worked out



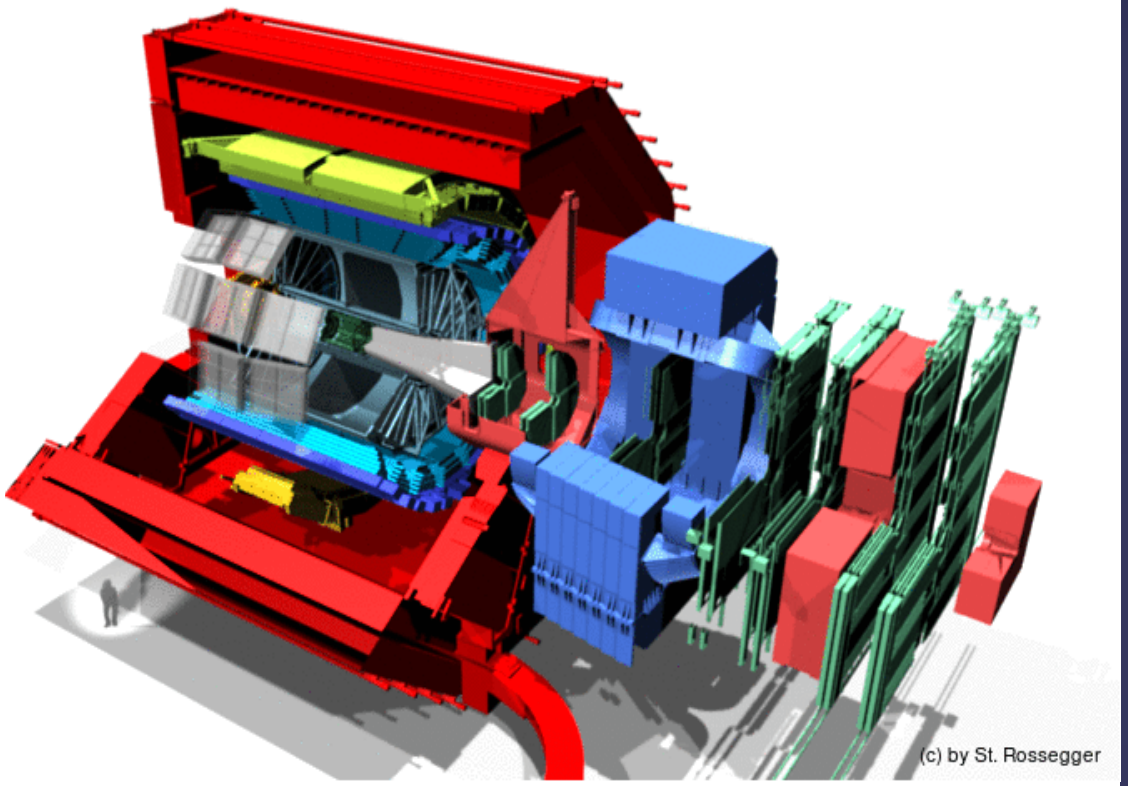


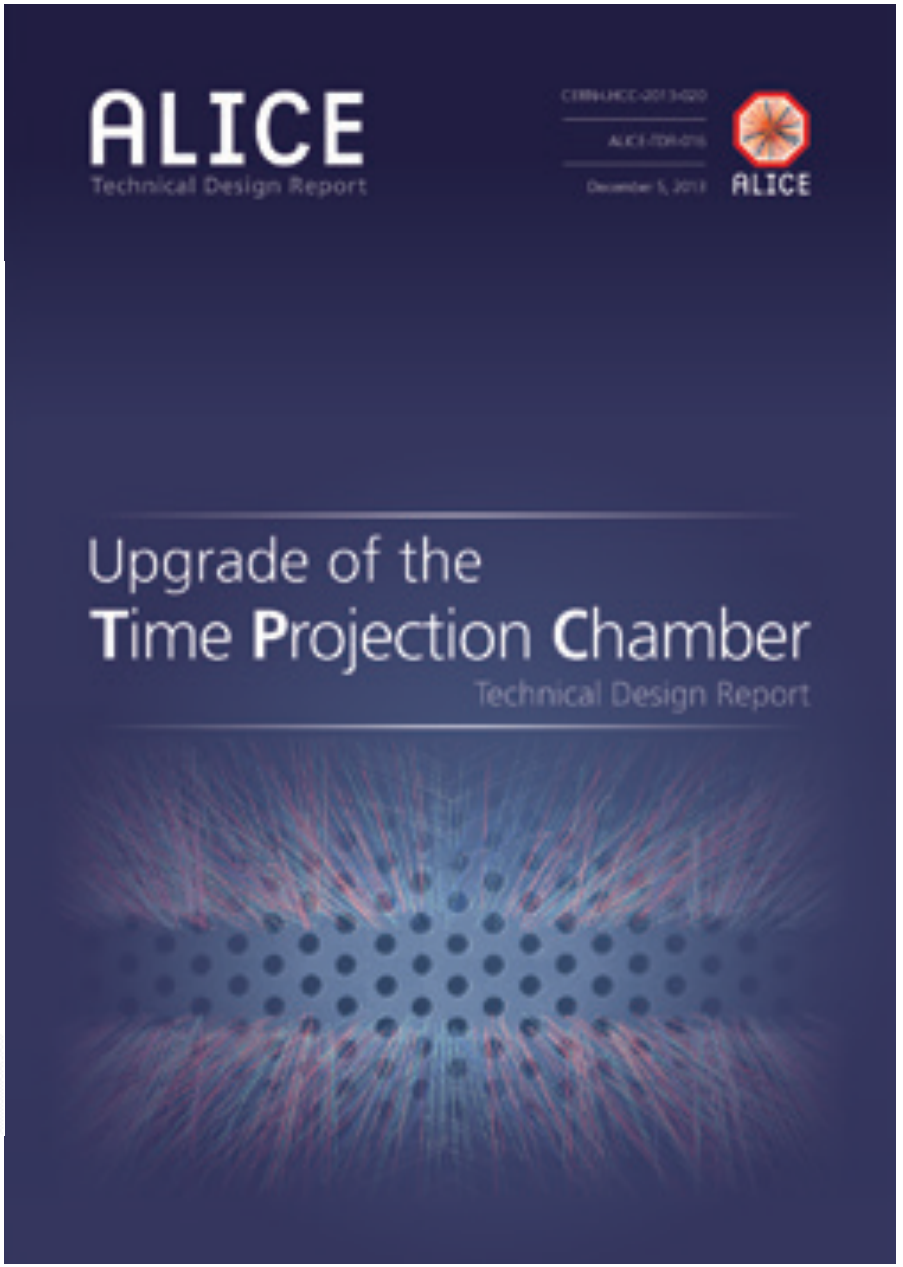


- Large scale model calculations:

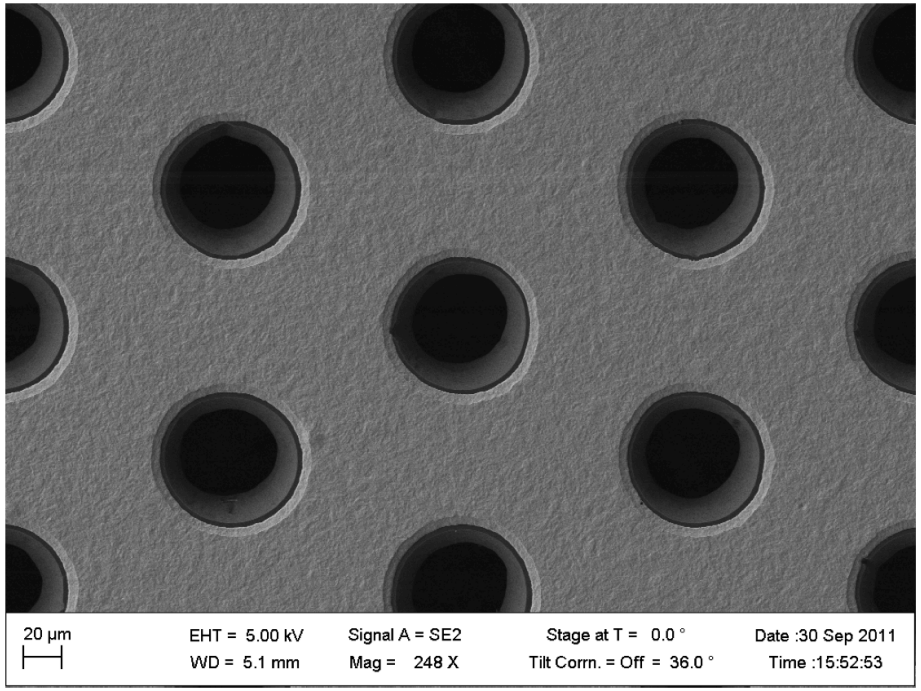
PYTHIA
HIJING
EPOS

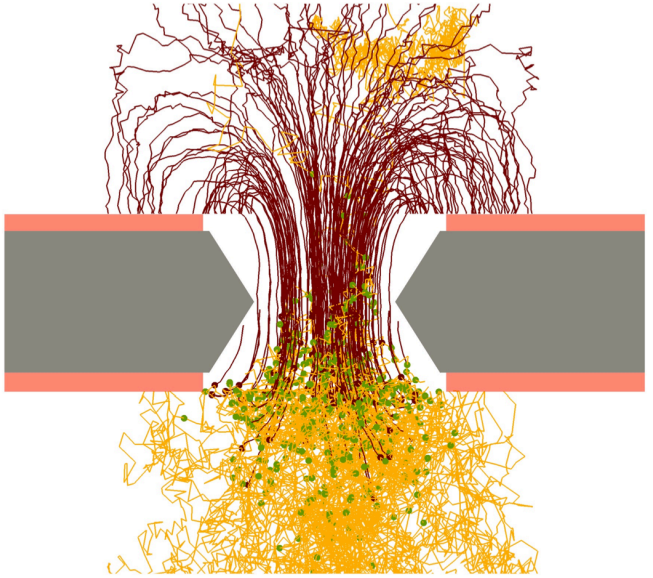
Commitment for ALICE Upgrade

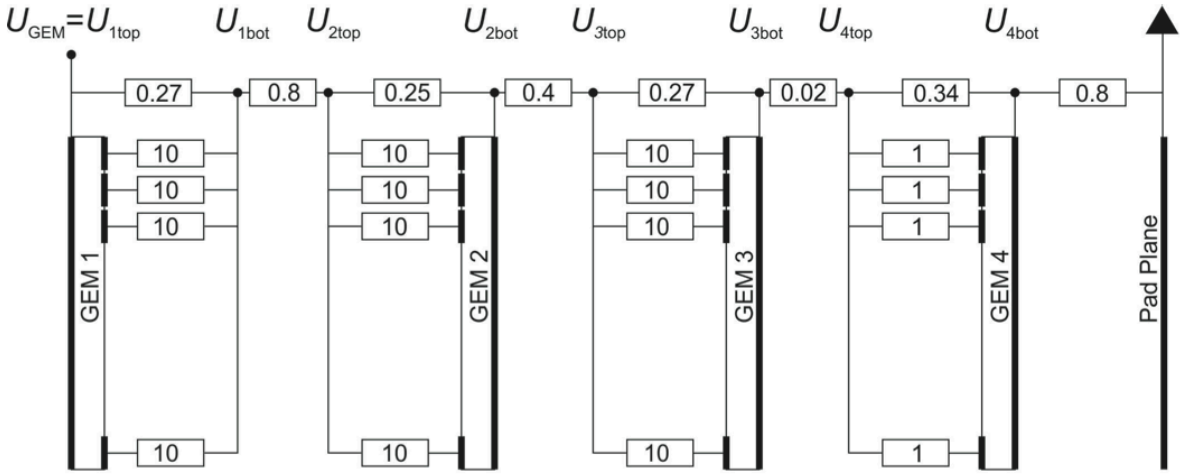


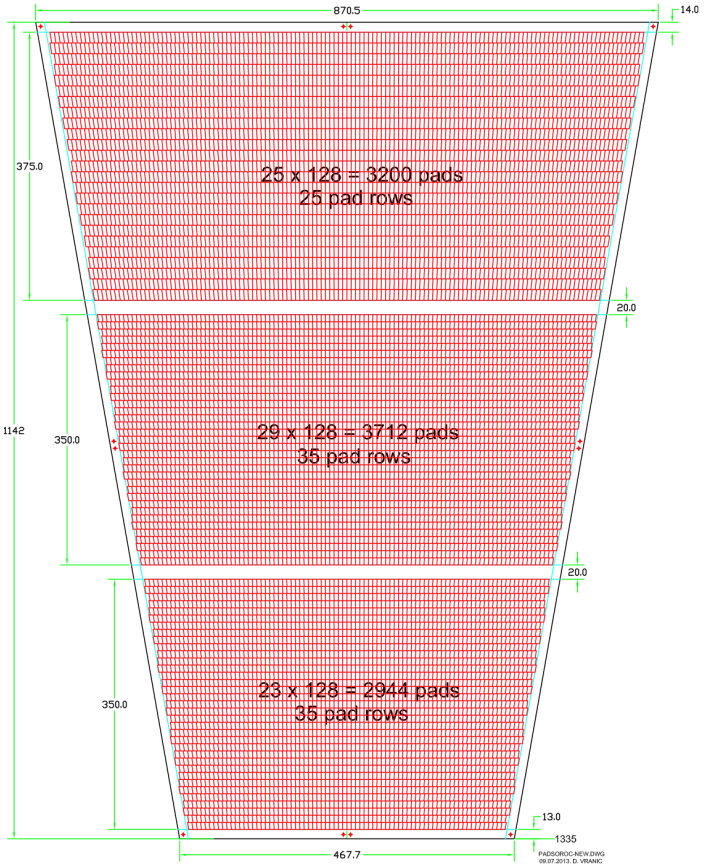


Commitment for ALICE Upgrade

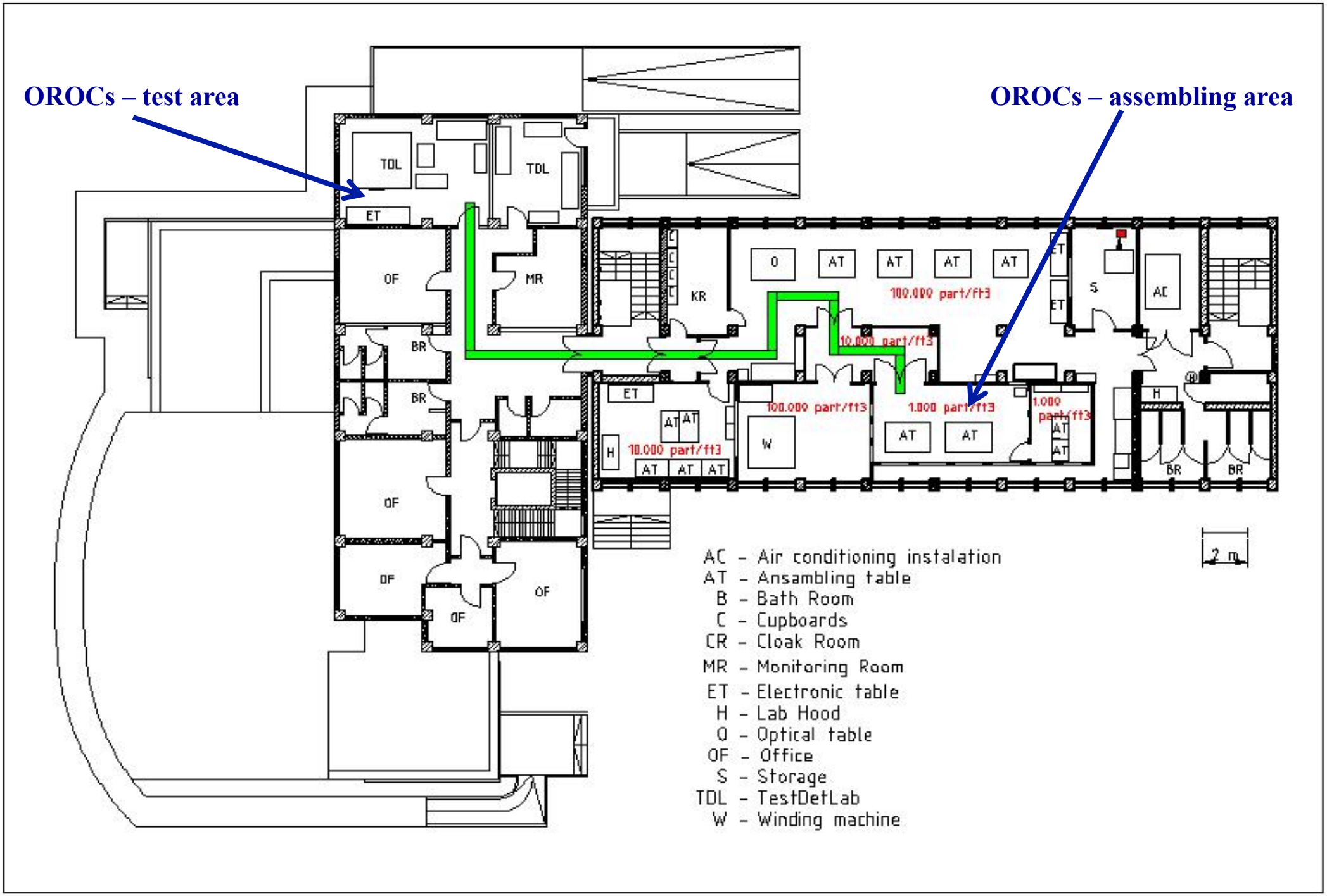




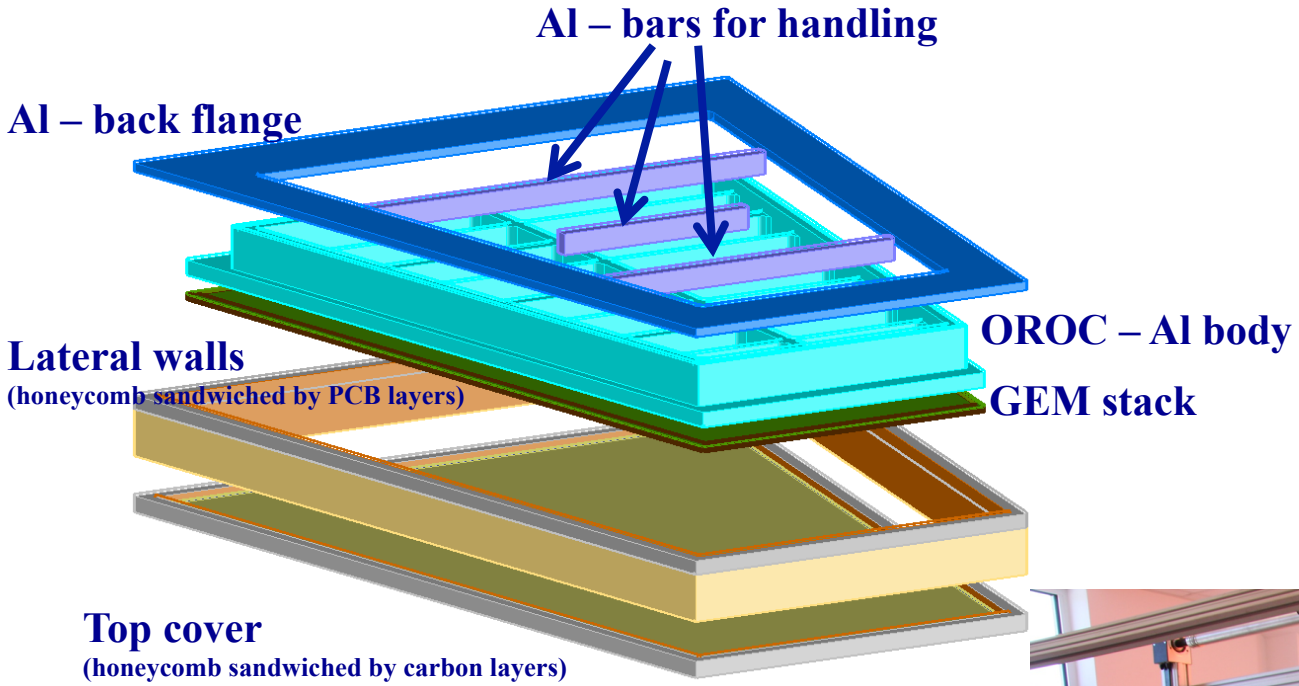


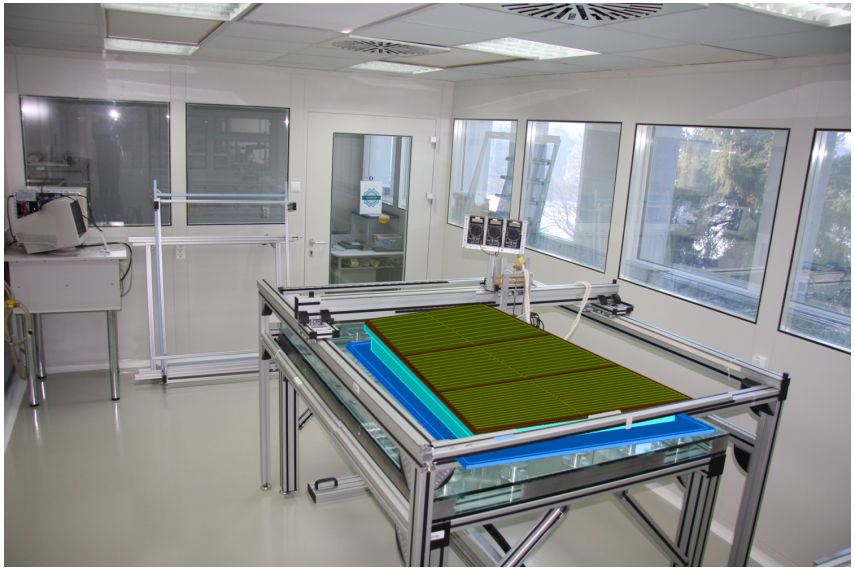


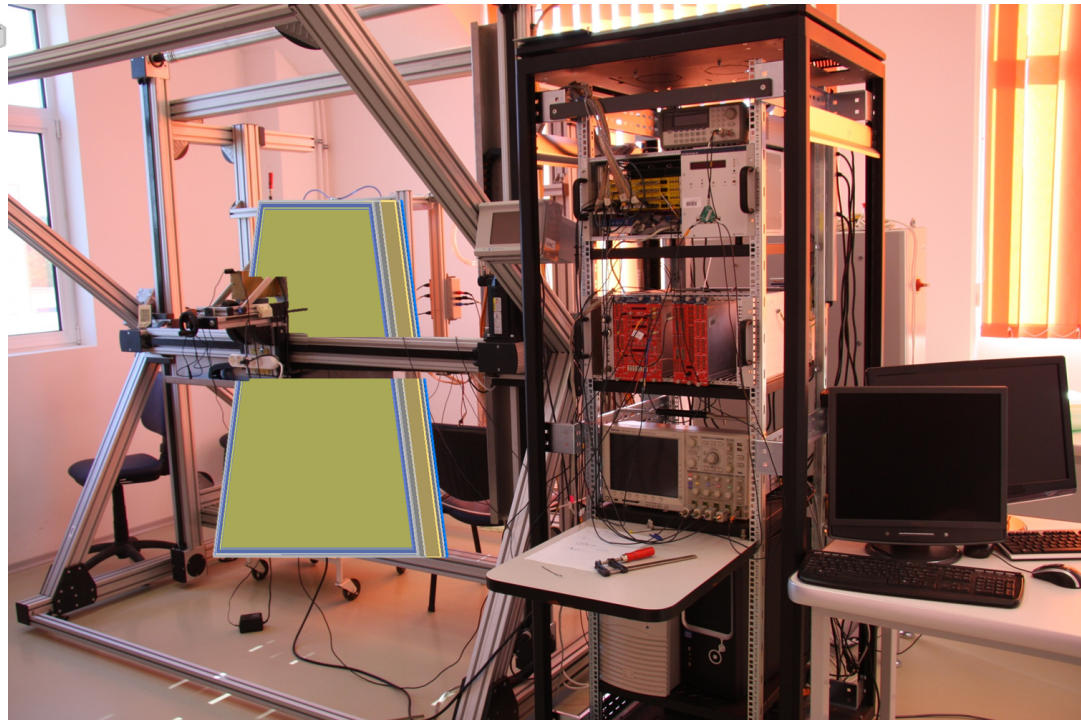
OROC assembling and test Labs.



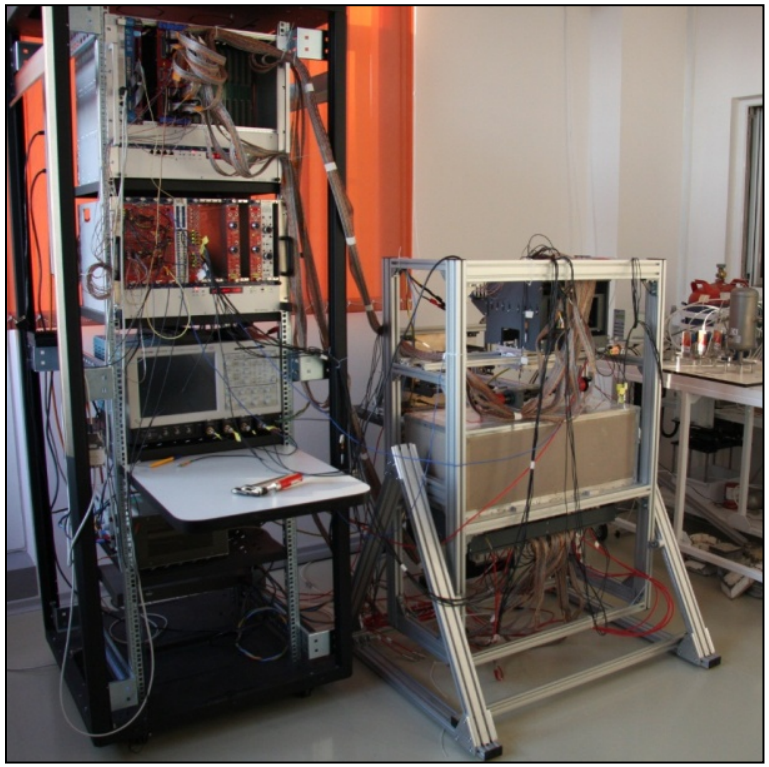
Proposed OROC - housing box
for in-house & in-beam tests

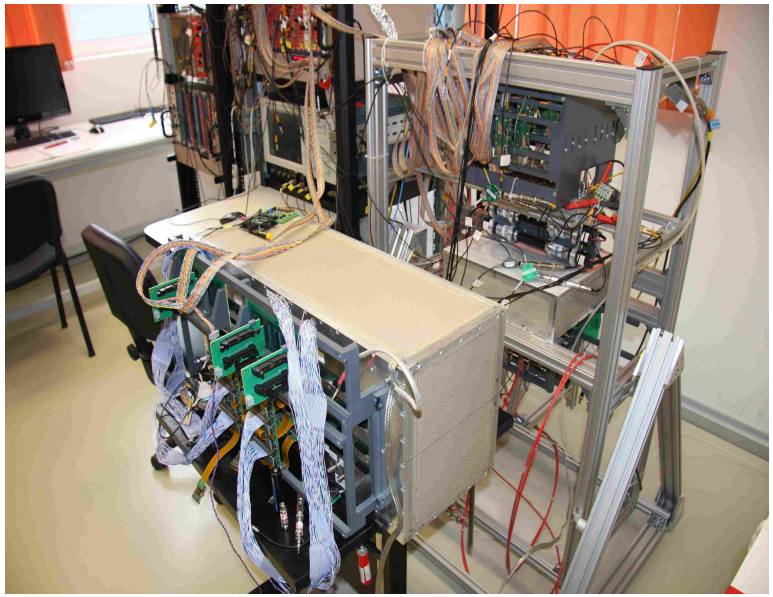


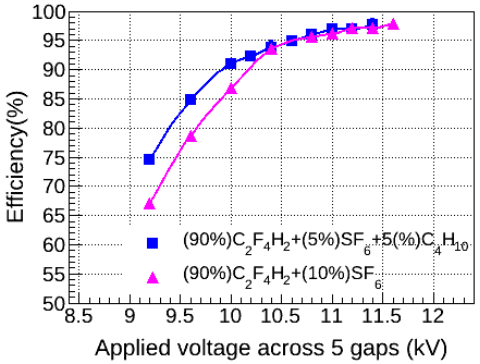


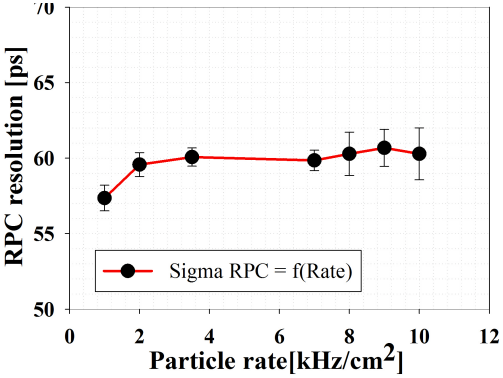


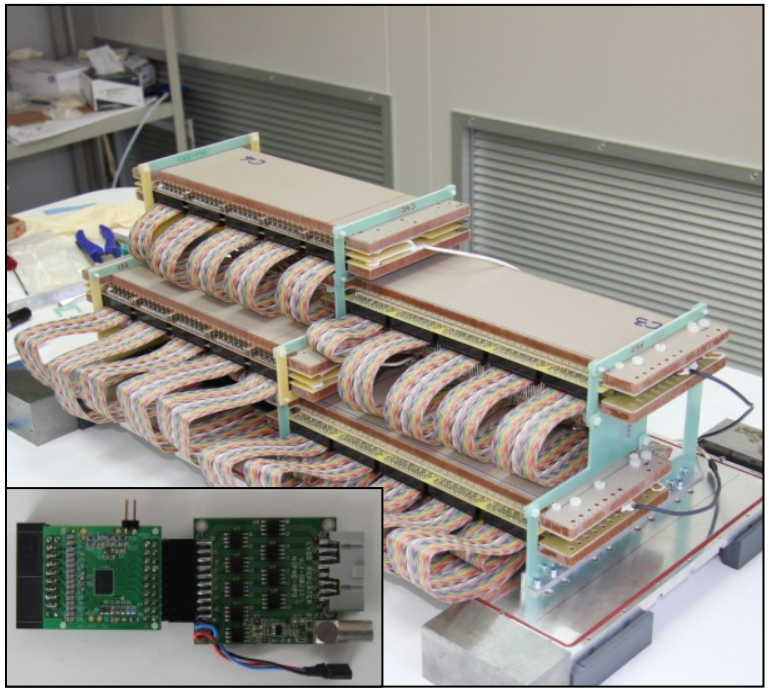
High counting rate RPCs

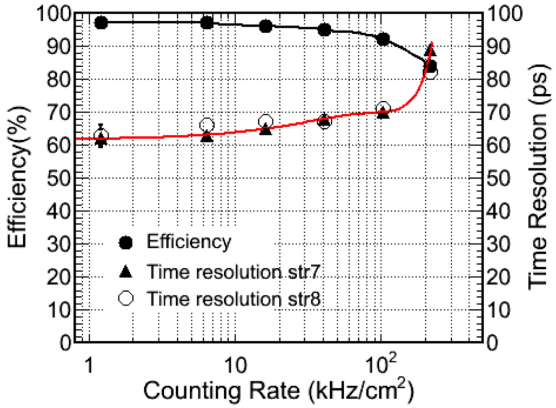


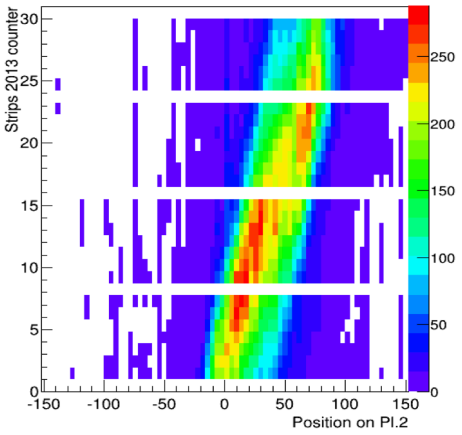


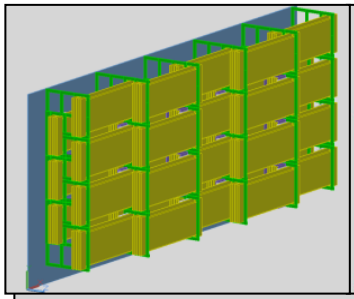


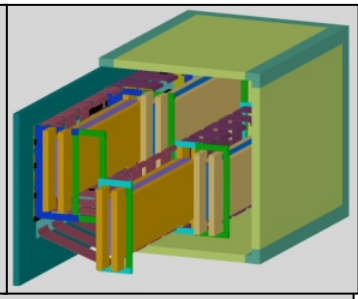


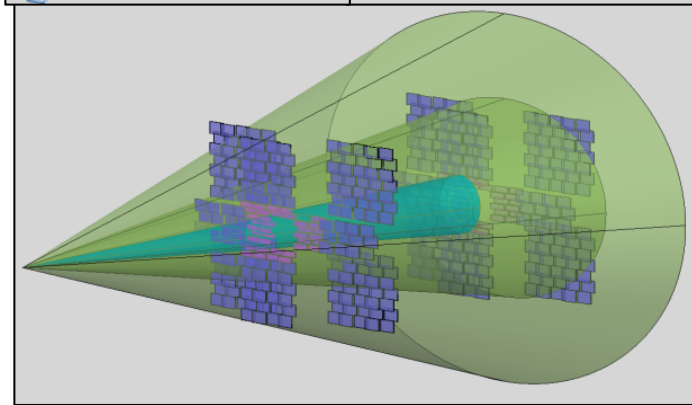




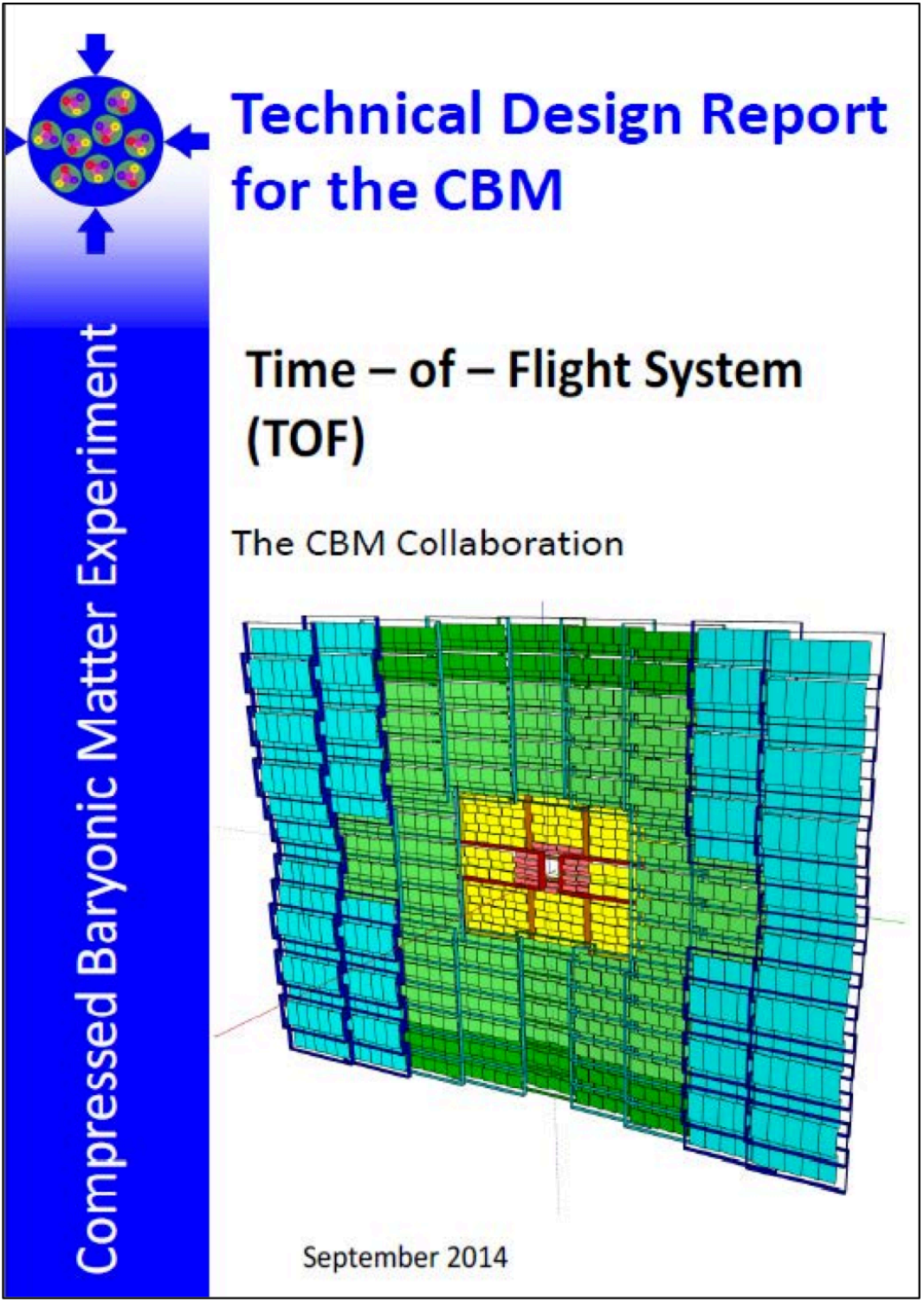


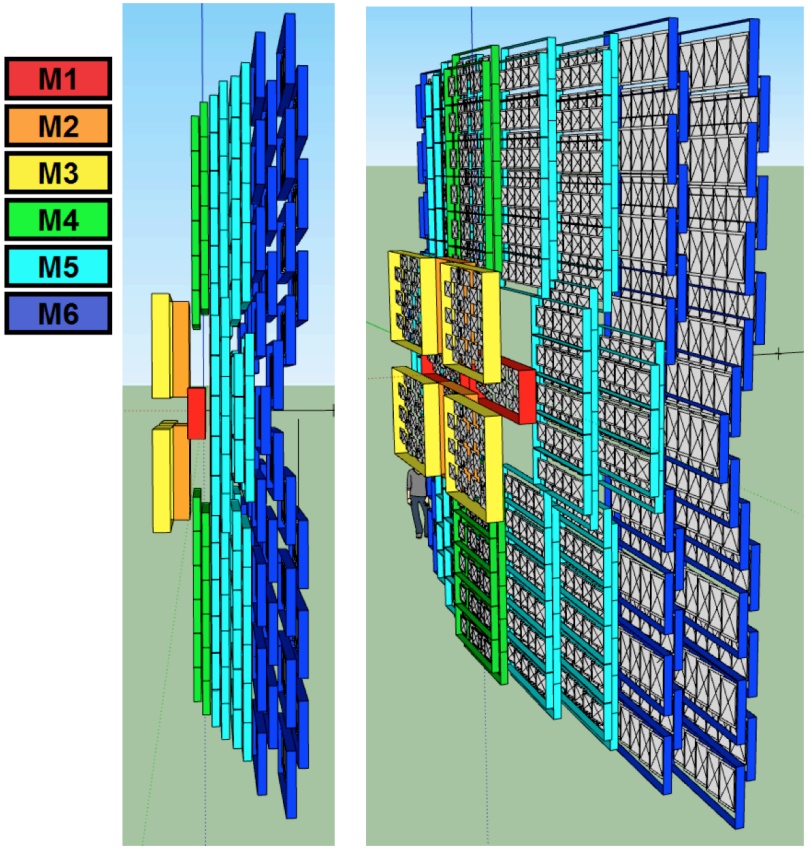


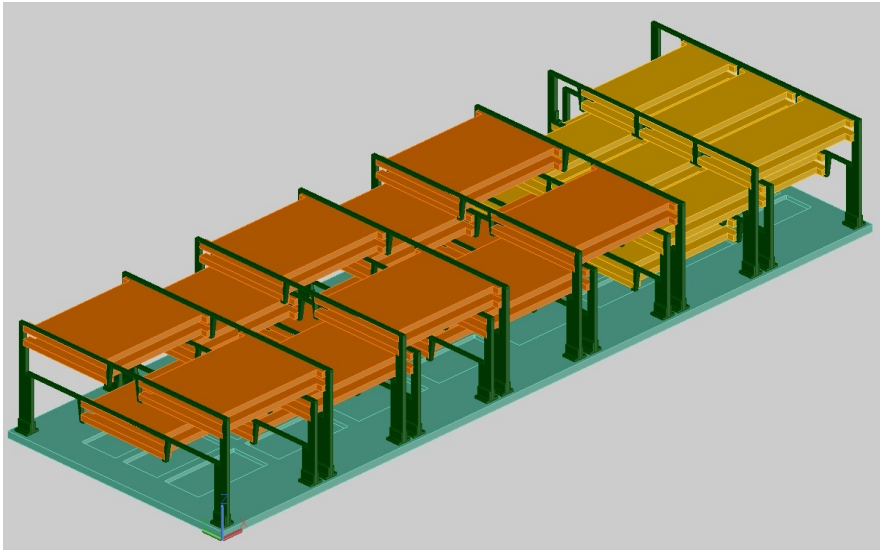




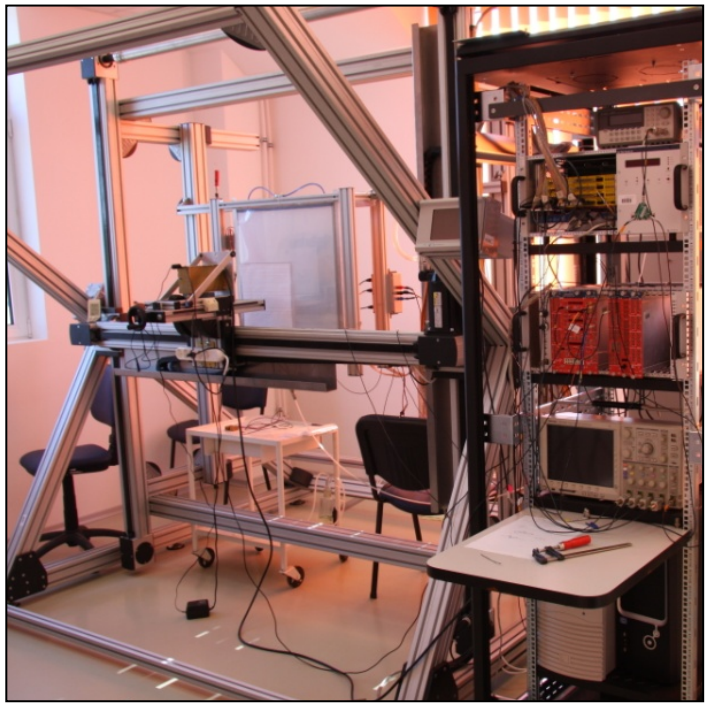
CBM-TOF

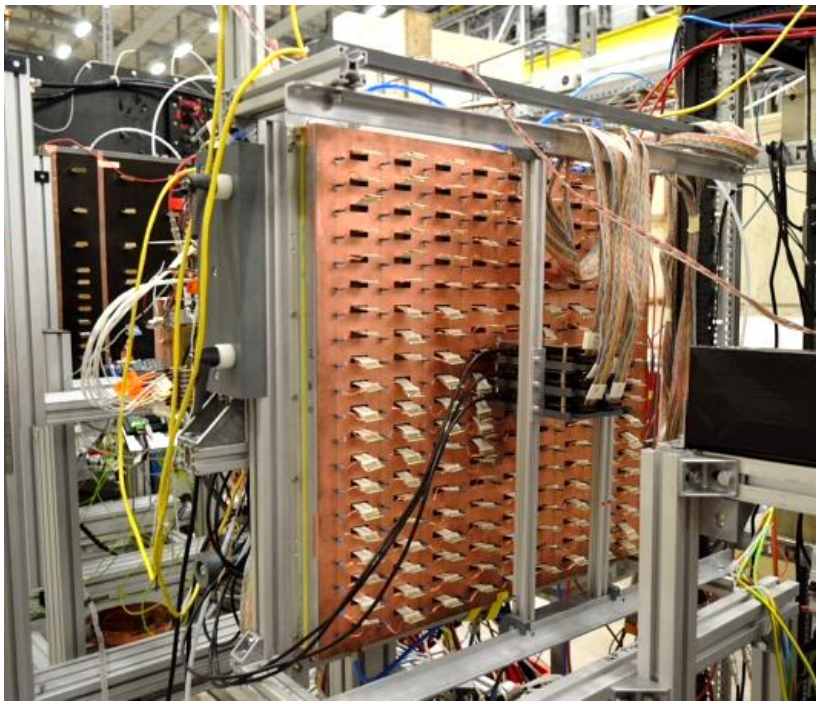

Compressed Baryonic Matter Experiment
Technical Design Report for the CBM
Time – of – Flight System (TOF)
The CBM Collaboration
September 2014

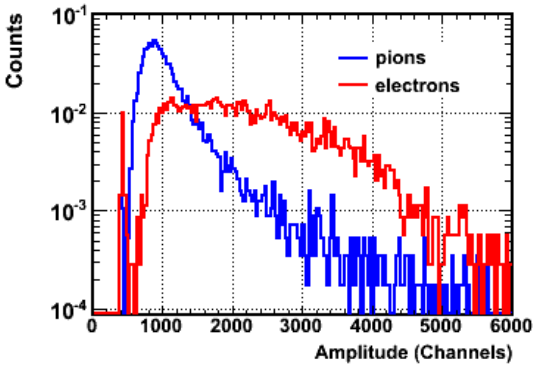

M1
M2
M3
M4
M5
M6

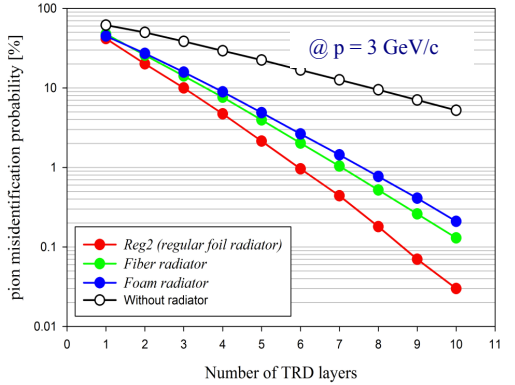


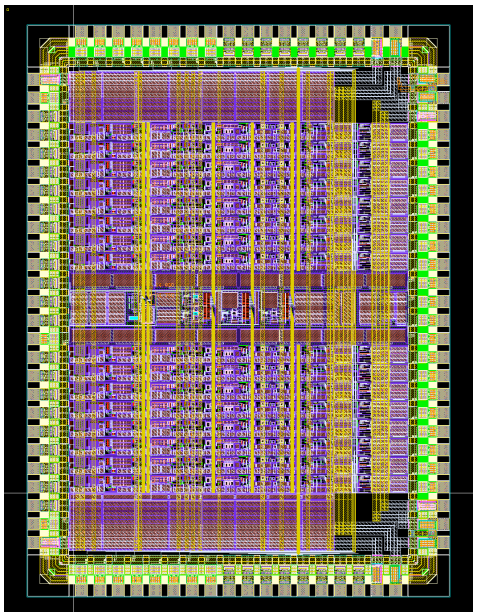
High counting rate TRD

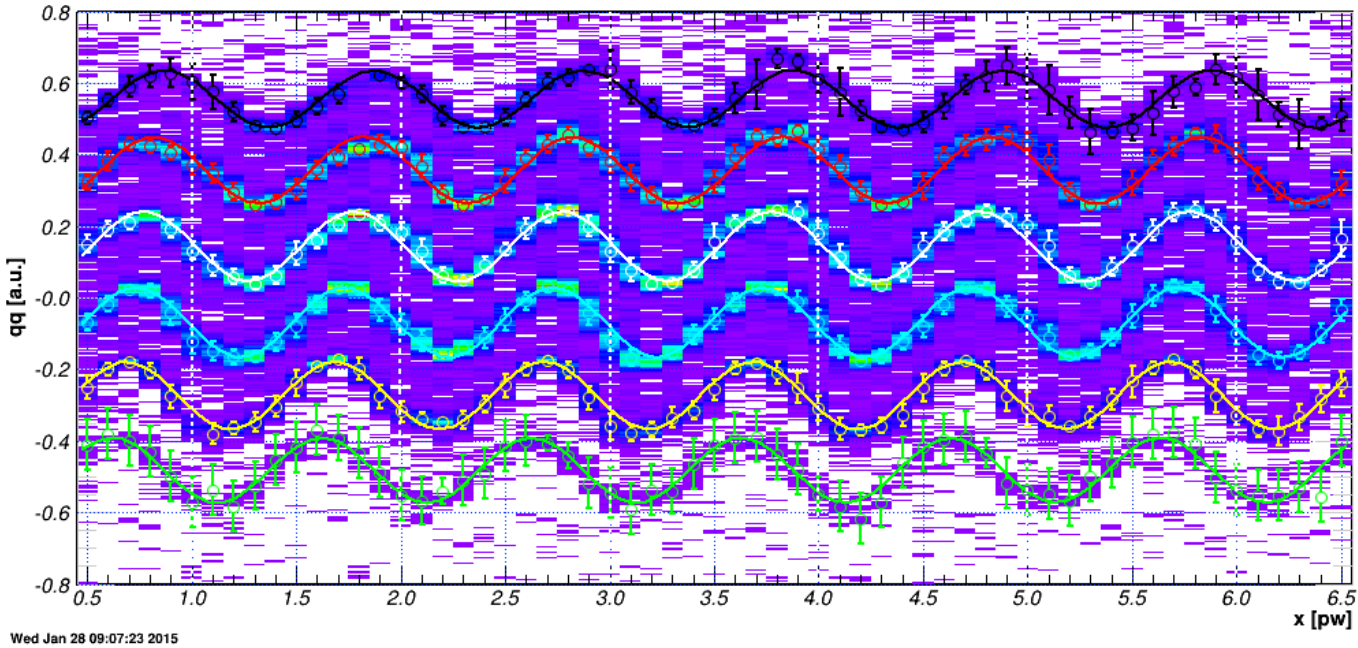






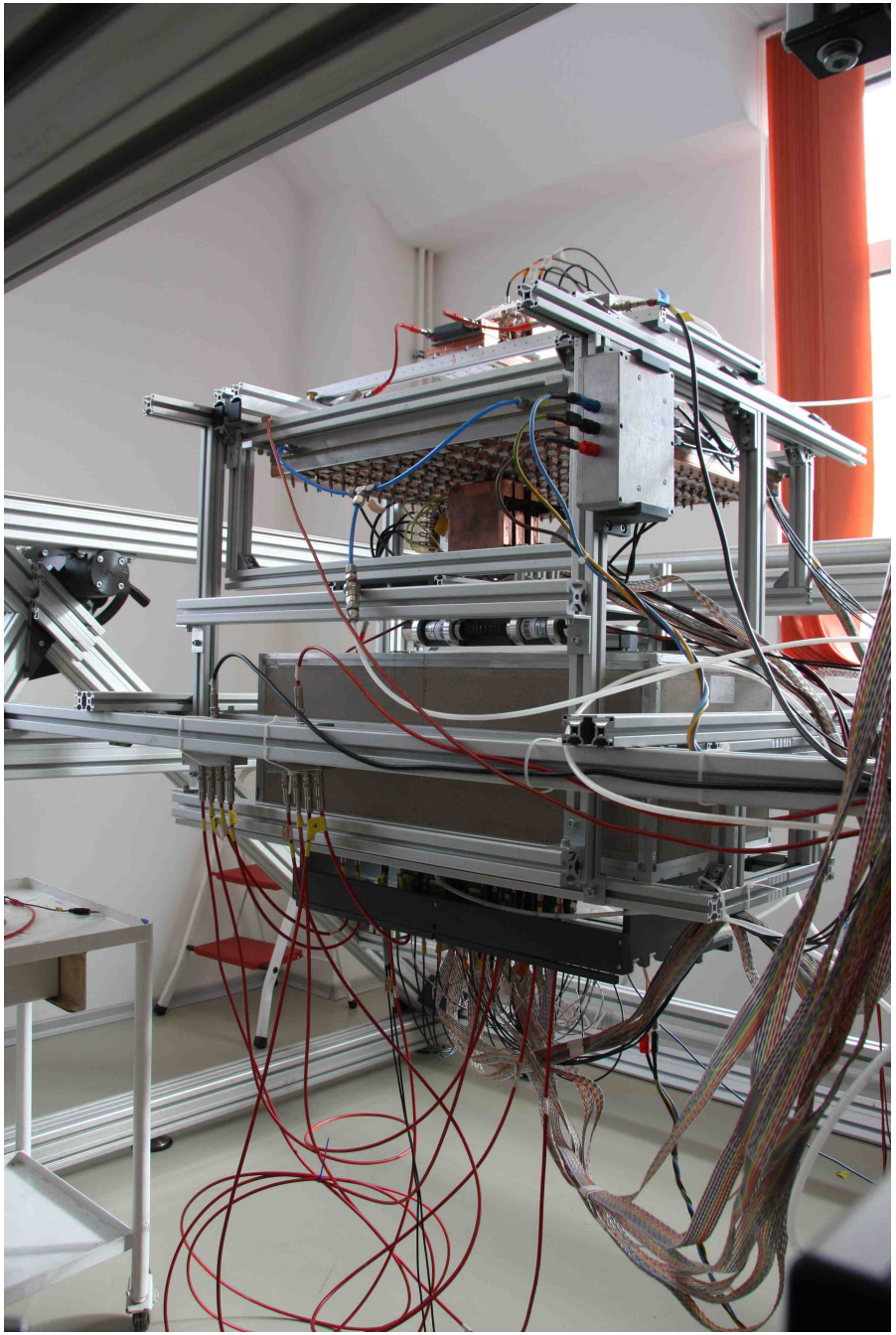




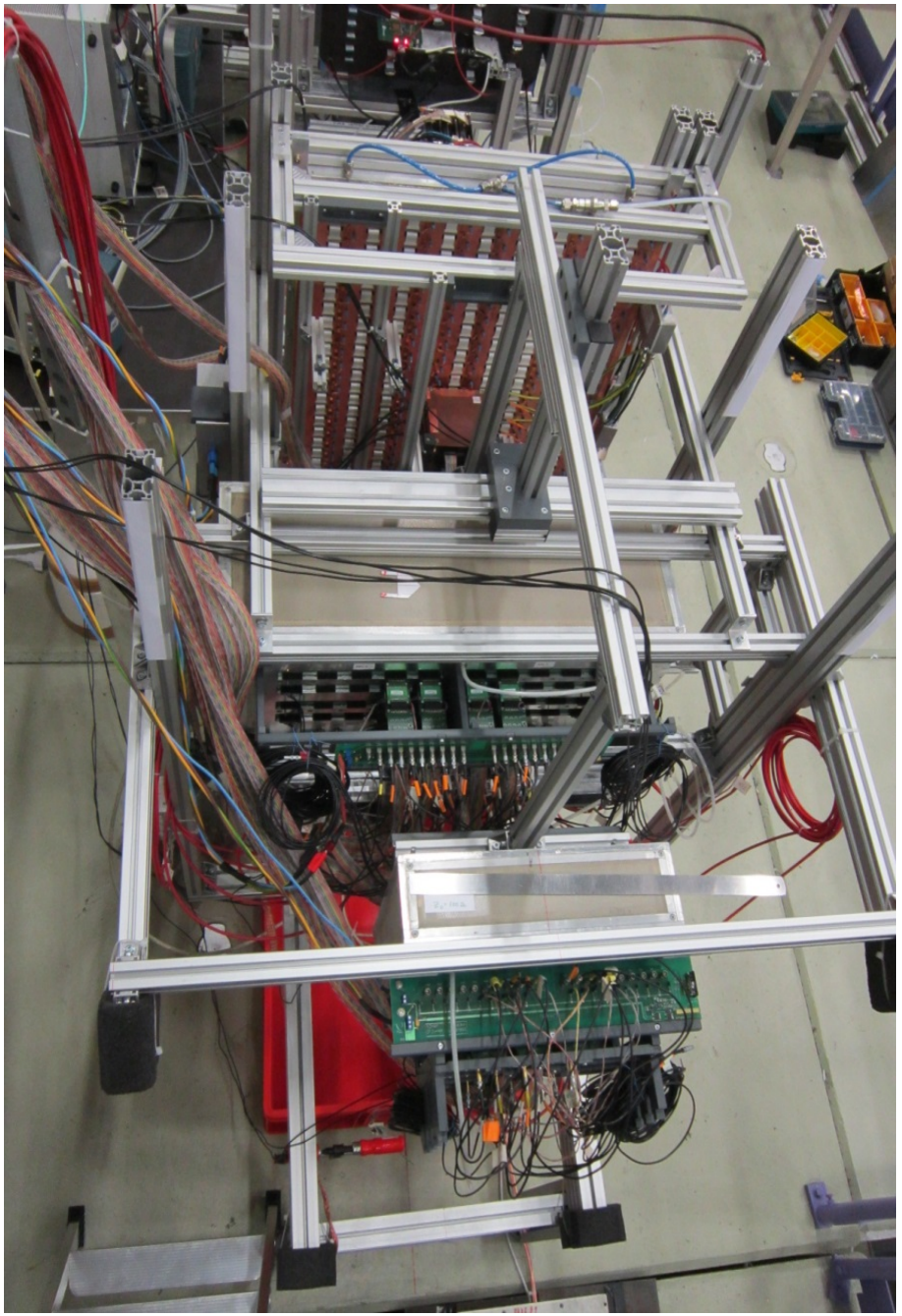


Complex experimental configurations

In-house tests



In-beam tests



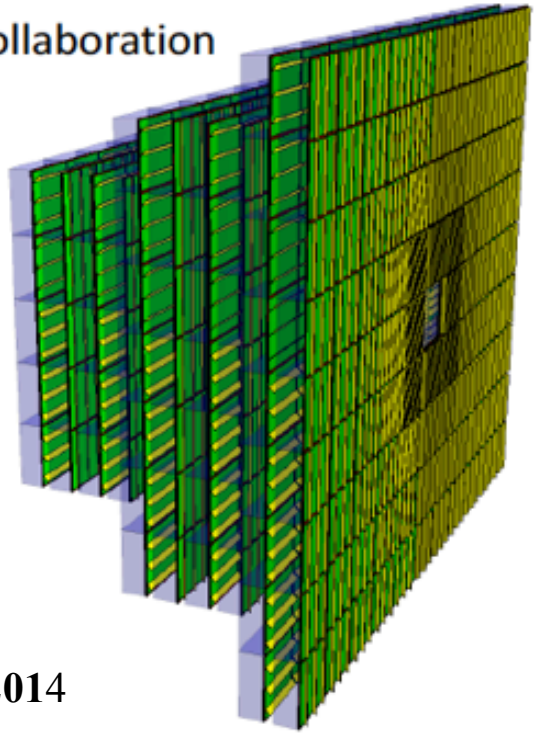
CBM-TRD

Compressed Baryonic Matter Experiment

Technical Design Report for the CBM

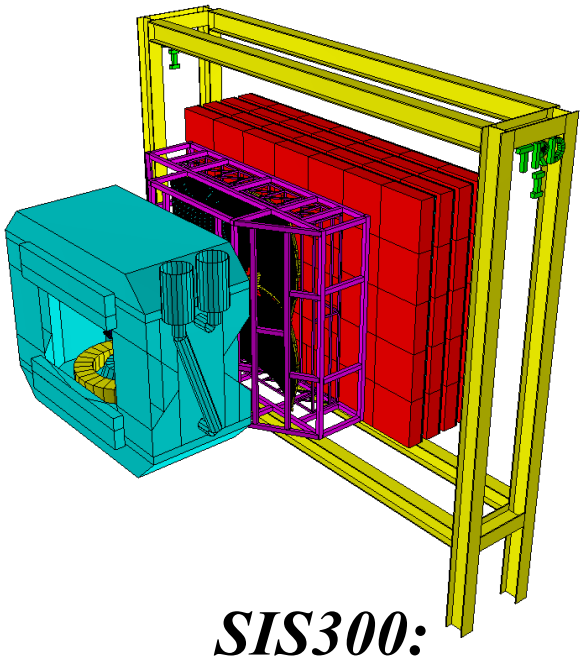
Transition Radiation Detector (TRD)

The CBM Collaboration



November 2014

SIS100:



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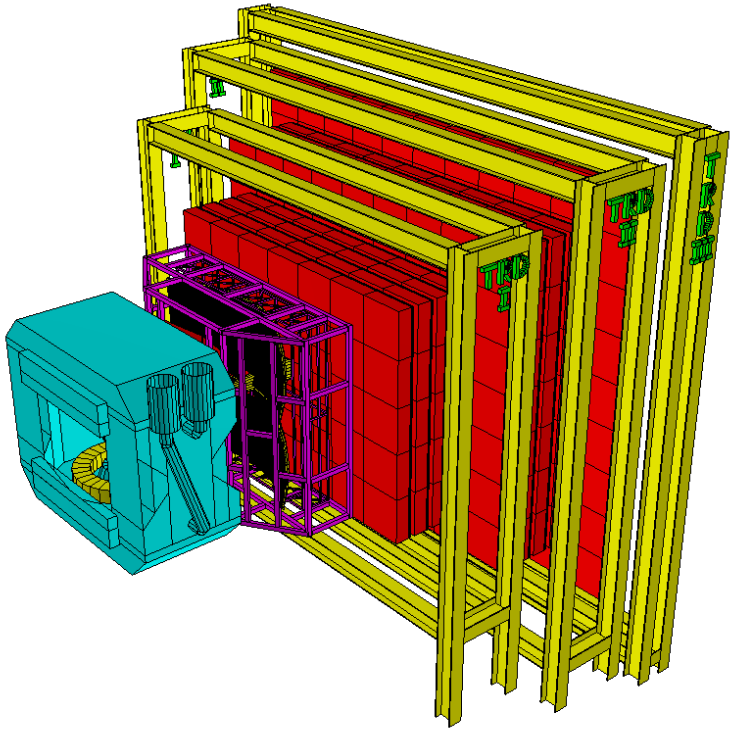
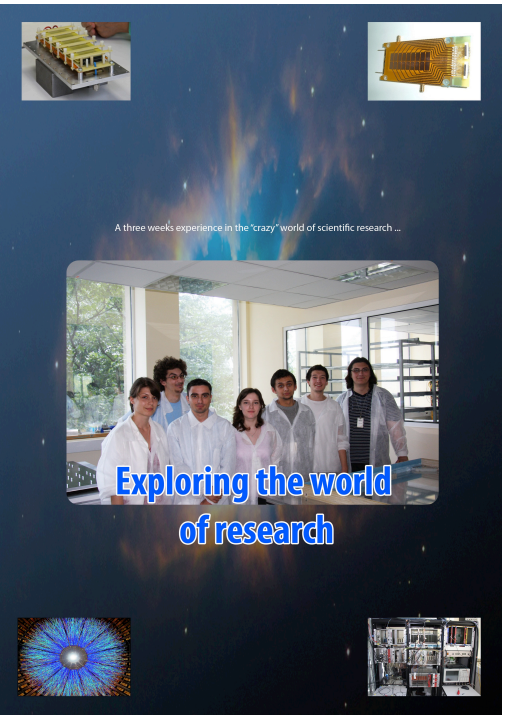
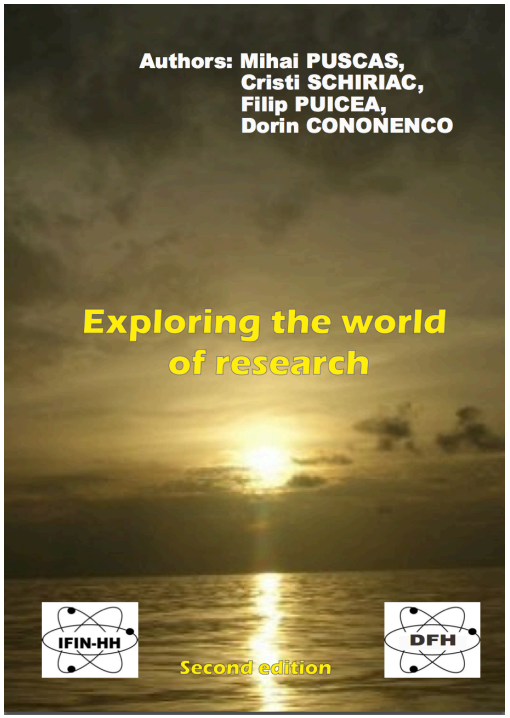
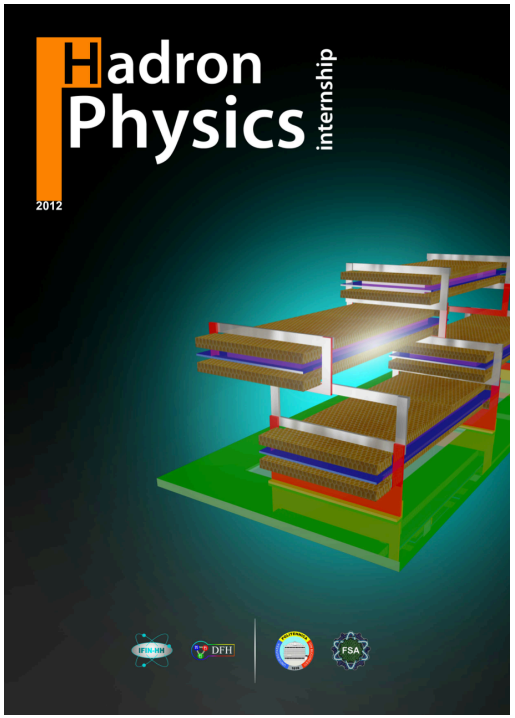
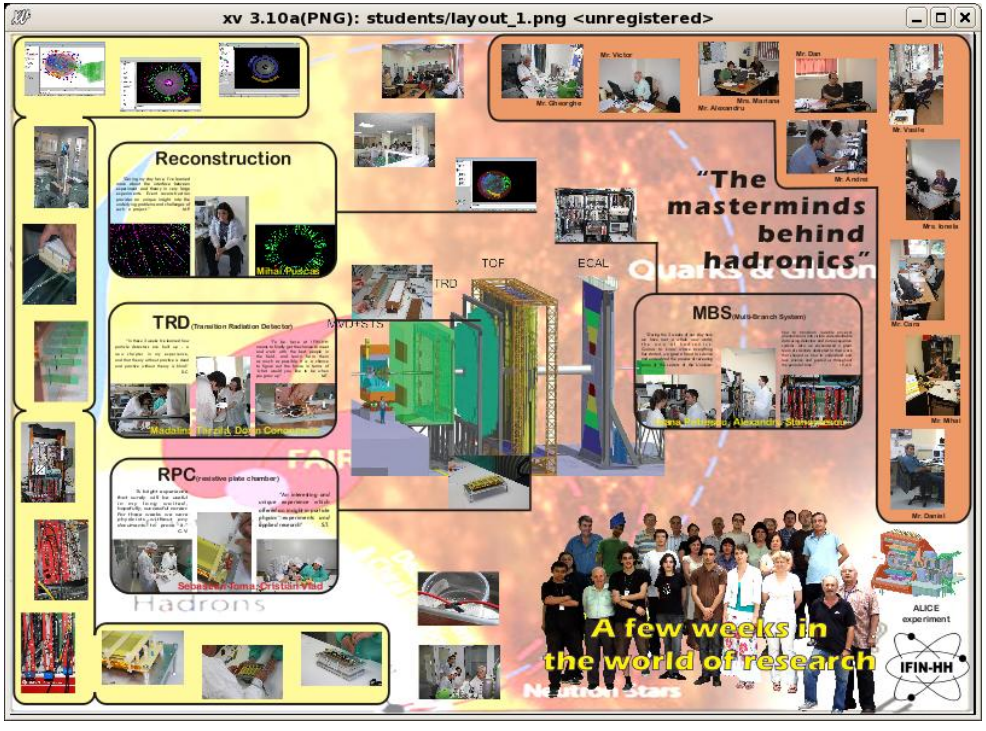


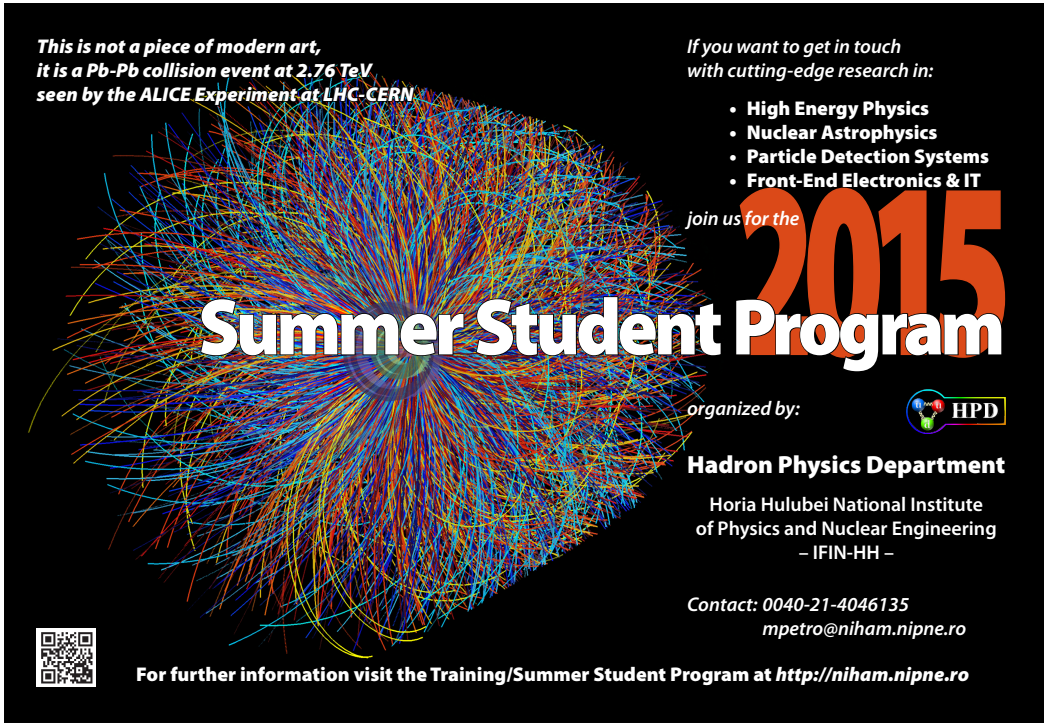
Training & teaching











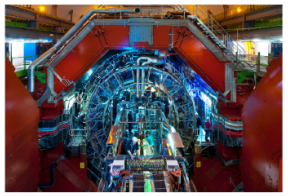
Outreach

Booklet

MINISTERUL EDUCAȚIEI NAȚIONALE

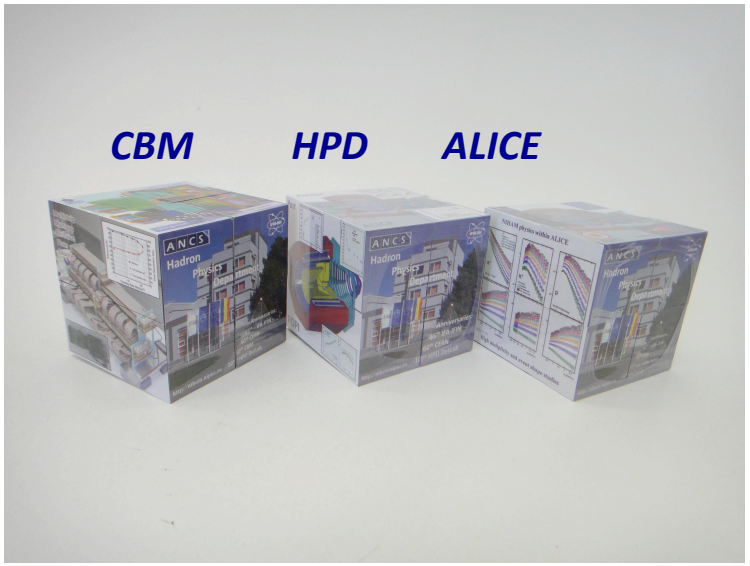
2014

- The 65th anniversary of IFA-IFIN-HH
- The 60th anniversary of CERN
- The 15th anniversary of ALICE membership
- The 10th anniversary of CBM membership
- The 10th anniversary of DetLab of HPD



ALICE CBM HPD

Magic cubes



Movie

Indicator	Valoarea indicatorului stabilita in contract		Valoarea indicatorului obtinuta pana la sfarsitul proiectului	
	UM	Cantitate	UM	Cantitate
1	2	3	4	5
Indicatori de realizare				
Locuri de munca create in CD datorita proiectului (numar)				4
Locuri de munca mentinute in CD datorita proiectului (numar)				27
Numar de tineri implicati in cercetare				5
Numar de femei implicate in cercetare				7
Teme de cercetare abordate				15
Proiecte internationale in care va fi implicata infrastructura (numar)				8
Regiuni defavorizate afectatate de implementarea proiectului				
Impact transnational (regional)				DA
Numar de cercetatori atrasi din strainatate				3
Posibilitatea de a initia politici publice in domeniul sanatatii				

We made it !

Many challenges ahead!

http://niham.nipne.ro