

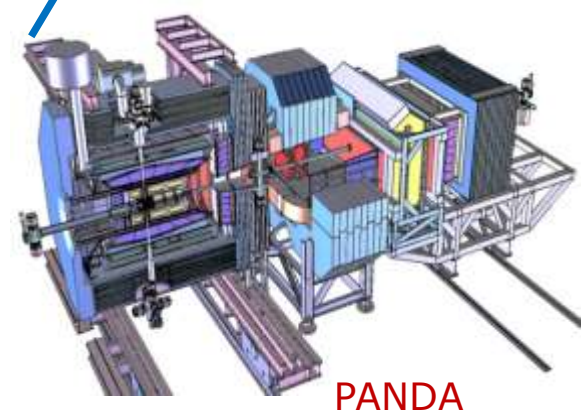
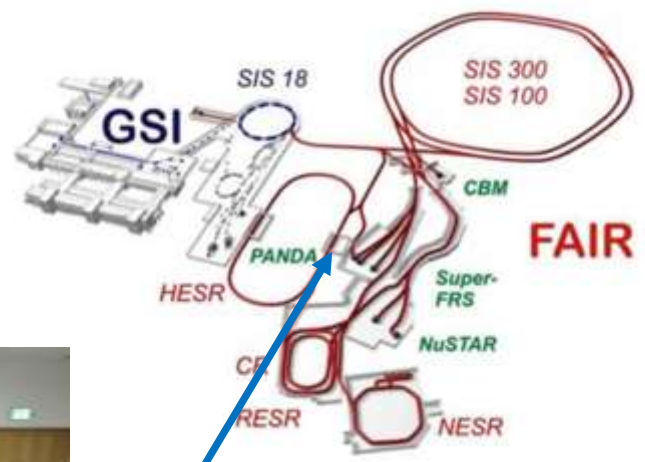


FAIR Experiment	PANDA
Project Title	Strong interaction studies in antiproton annihilation (SISTINA)
Stage I	Annual report - 2014

Experimentul PANDA (Anti-Proton ANnihilation at DArmstadt)

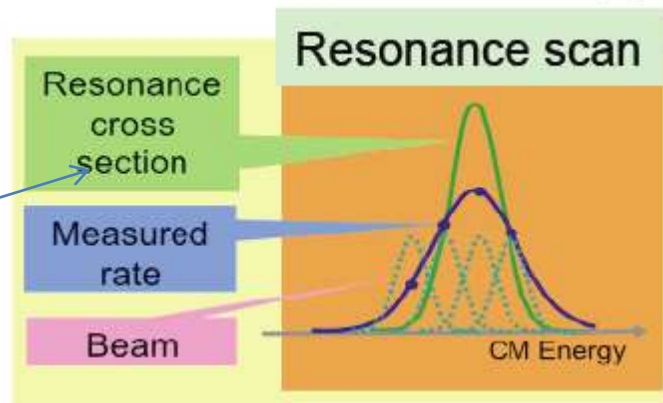
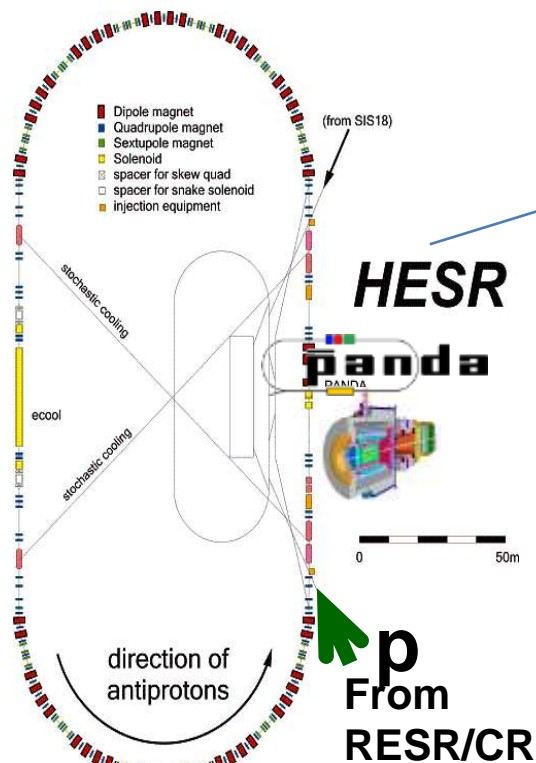
- Colaborare între **67 Institute și Universități** din **18 țări** (Australia, Austria, Belarus, China, Franta, Germania, India, Italia, Polonia, Romania, Rusia, Spania, Suedia, Elvetia, Thailanda, Olanda, USA, UK);
- **482 membrii.**

Facility for **A**ntiproton and **I**on **R**esearch



Experimentul PANDA

Experimentul PANDA este un experiment proiectat pentru a aduce contribuții pe trei mari direcții de cercetare din domeniul fizicii particulelor elementare: spectroscopie, structură și interacții ale particulelor.

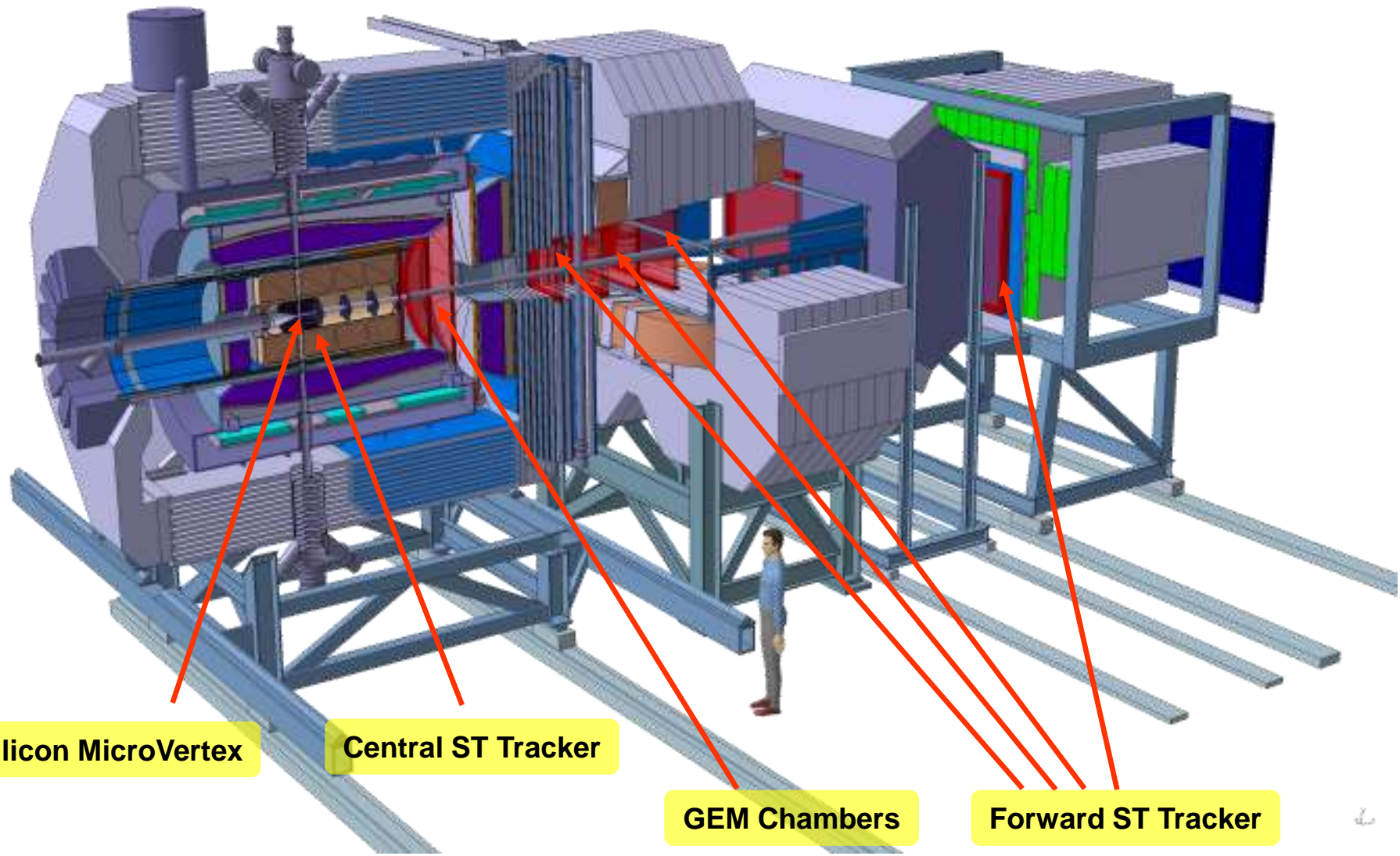


$p_{beam} = 1.5 - 15 \text{ GeV}/c$
 $2.3 \leq \sqrt{s} \leq 5.5 \text{ GeV}$
HESR: Rezoluție în masă de
 aprox. 30KeV (FERMILAB ~
 240 KeV)

În IFIN-HH DFPE avem experiența pe partea de:

- Spectroscopie particule cu charm (DUBNA, FERMILAB, CERN);
- Atomi exotici (în PANDA se are în vedere și efectuarea unui studiu al atomilor hiperonici Ξ^-)

PANDA tracking sub-systems



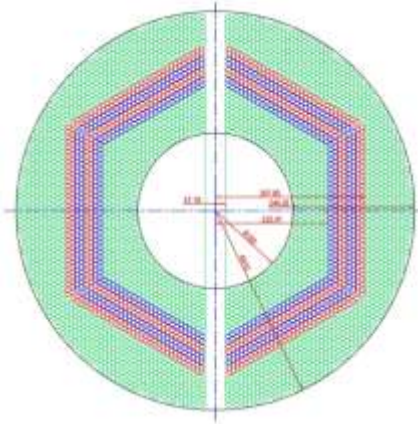
Silicon MicroVertex

Central ST Tracker

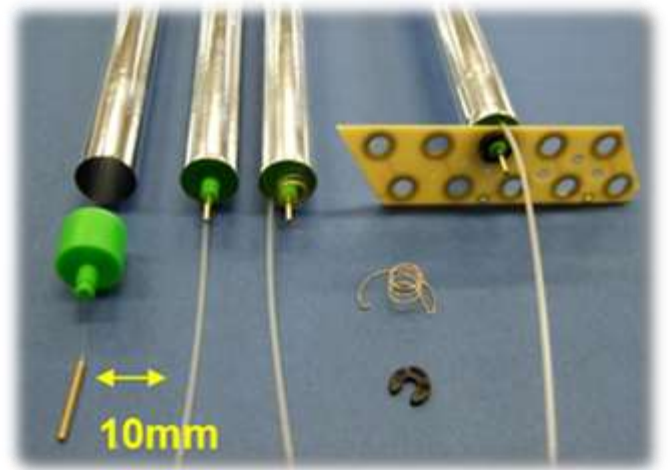
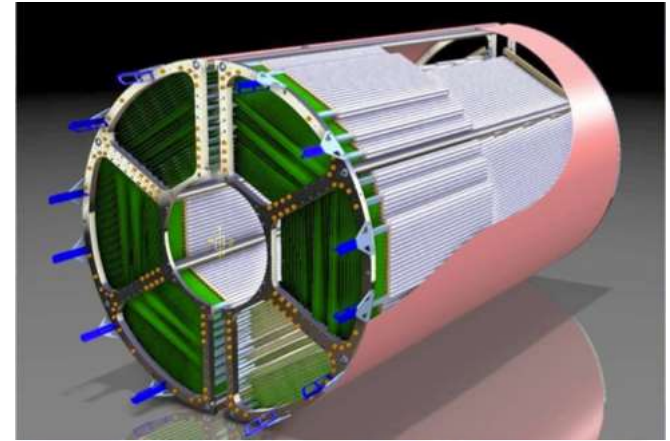
GEM Chambers

Forward ST Tracker

Sub-sistemul PANDA STT Central



- Reconstrucția traiectoriilor ptr. particule încărcate cu impulsul 100 MeV/c- 8 GeV/c;
- dE/dx pentru PID;
- **4636** tuburi subțiri cu drift (Straw Tubes) distribuite în 24- 27 straturi planare;
- împachetate la o distanță de 20 μ m în 6 sectoare de hexagon;
- structura rigidă – se poate auto-sustine (gaz la pres. de 2atm.);

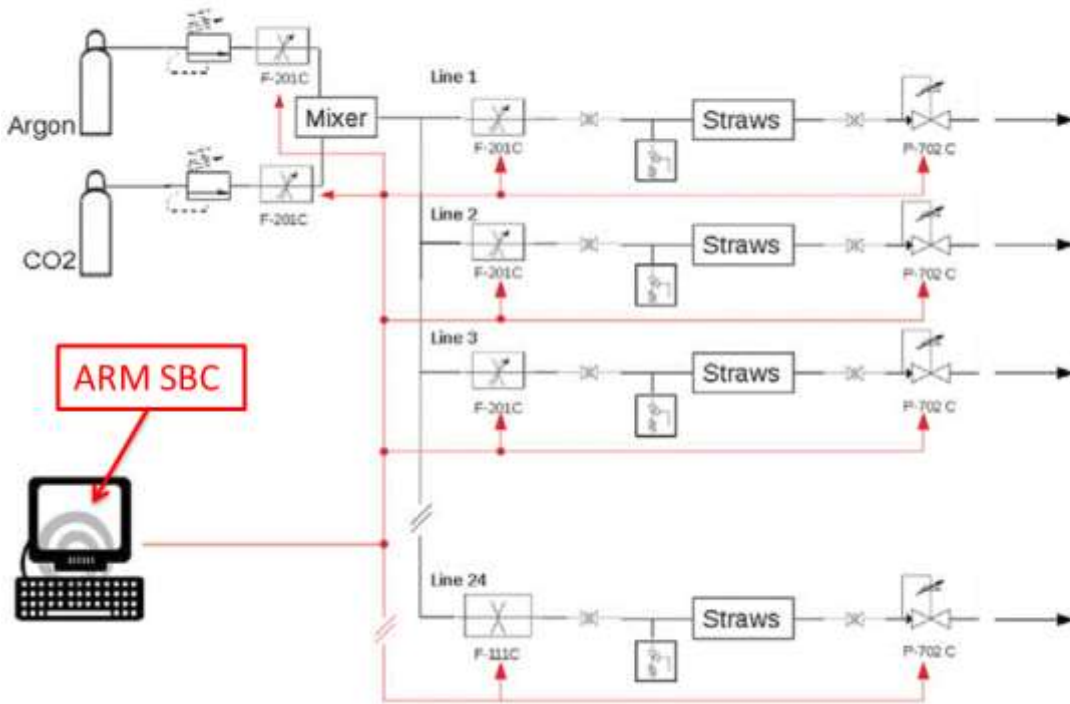


Performanțe:

- $\sigma_{r\phi} \sim 150(100) \mu\text{m}$, $\sigma_z \sim 3.0(2.0) \text{ mm}$ (single hit)
- $\sigma_E/E < 8\%$ for π/K identification
- $\sigma_p/p \sim 1 - 2\%$ at B=2 Tesla
- $X/X_0 \sim 1.2\%$ ($2/3$ tube wall + $1/3$ gas)

Element	Material	X [mm]	X_0 [cm]	X/X_0
Film Tube	Mylar, 27 μ m	0.085	28.7	3.0×10^{-4}
Coating	Al, 2 \times 0.03 μ m	2×10^{-4}	8.9	2.2×10^{-6}
Gas (2bar)	Ar/CO ₂ (10%)	7.85	6131	1.3×10^{-4}
Wire	W/Re, 20 μ m	3×10^{-5}	0.35	8.6×10^{-6}
			Σ_{Straw}	4.4×10^{-4}

Eur. Phys. J. A (2013) 49: 25

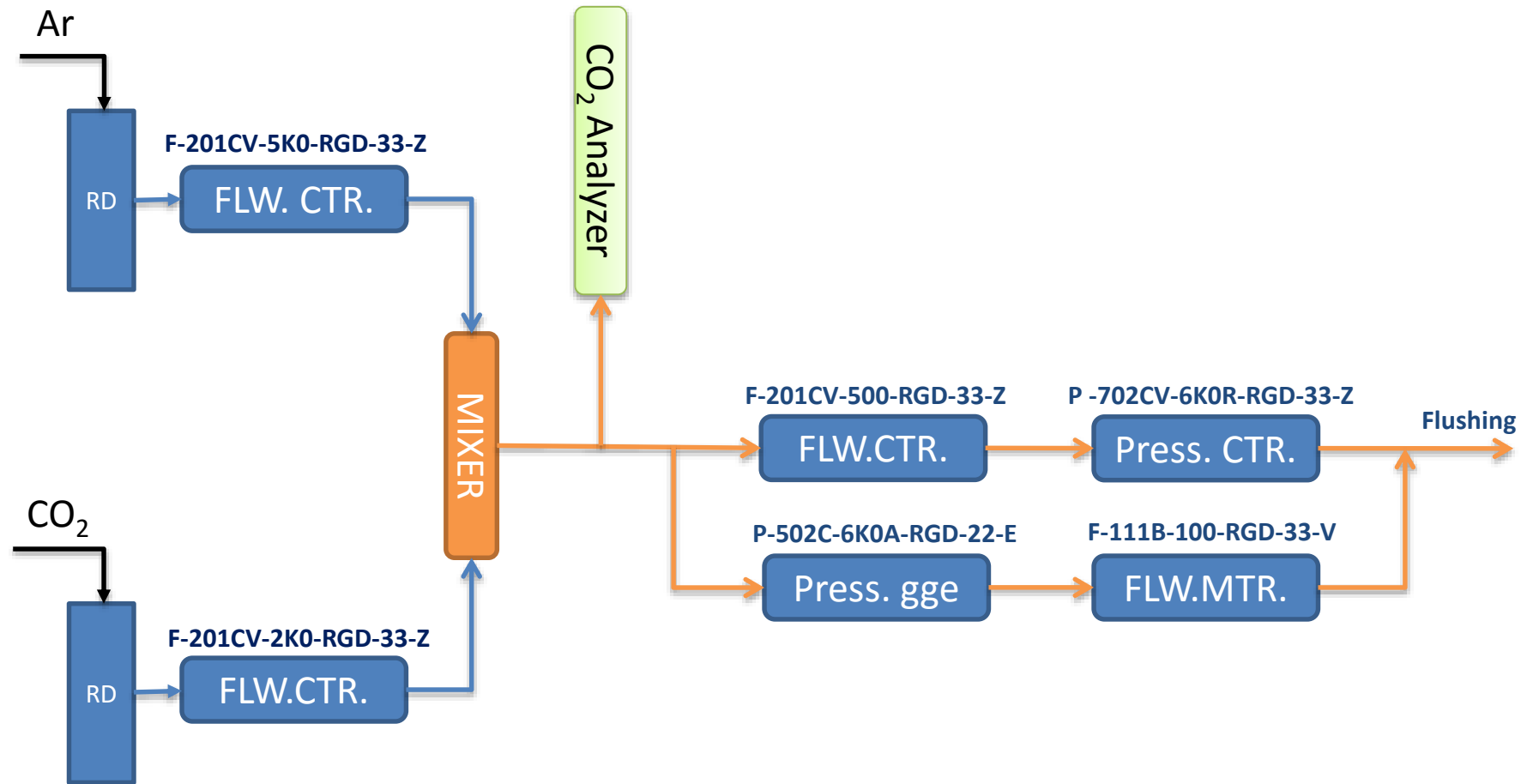


Control lent pentru sistemul de alimentare cu gaz al PANDA STT:

- Amestec Ar - CO₂ (10%);
- 2 x 24 linii de gaz (inlet/outlet);
- 26 (F-201C) controlere debit gaz;
- 24 (P-702C) controlere de presiune

Aranjament experimental de test in IFIN-HH.

Prototype of PANDA STT gas system with 2 mixing lines and 2 distribution lines

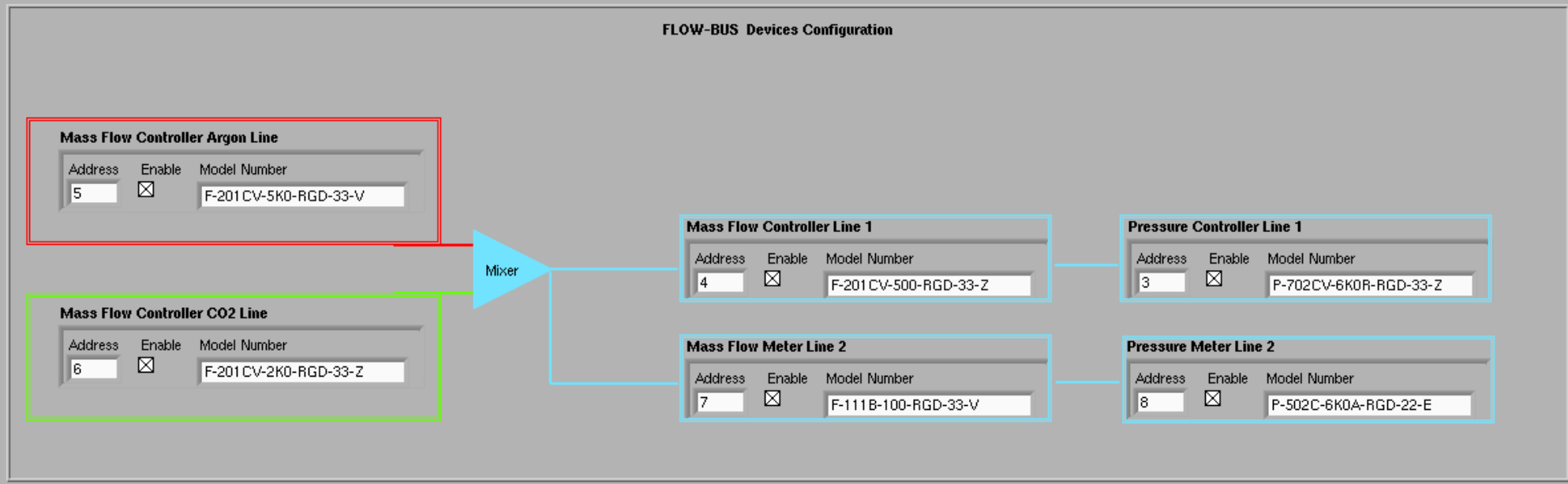




LabView Control Software

RS232/FLOW BUS Settings

Monitor Control Alarms



PC RS232 COM PORT

ASRL1::INSTR

Baud Rate

38400

FLOW-BUS Connect

FLOW-BUS Disconnect

Exit Program

FLOW-BUS Instruments Query

Address	Model Number	Serial Number	Id	Firmware	Temperature [C]
5	F-201 CV-5K0-RGD-33-V	M14205662B	OK	V1.21d	35.69
6	F-201 CV-2K0-RGD-33-Z	M14205662A	OK	V1.21d	35.13
4	F-201 CV-500-RGD-33-Z	M14200716A	OK	V1.21d	34.88
3	P-702CV-6K0R-RGD-33-Z	M14205662D	OK	V1.21d	0.00
7	F-111B-100-RGD-33-V	M14205662C	OK	V1.21d	27.44
8	P-502C-6K0A-RGD-22-E	M10203266B	OK	V8.20	20.00



STT Gas Control Software (2015)

- The safety of the gas system prototype, built this year, will be improved by the addition of a **CO₂ analyzer (already ordered by IFIN-HH), moisture and O₂ analyzer (INFN-LNF budget) , safety valves and gas temperature monitoring;**
- LabView code will be kept as an expert interface for development and performance testing purposes;
- Final version to run on ARM with EPICS & CSS (prototype in 2015).

Activitati - PandaGrid

PandaGrid – prima componenta functionala din PANDA (2005).
In prezent: situri grid 13 institute, 1400 noduri active, 2,372 PB stocare
IFIN-HH din 2005, 48 noduri de calcul, 1.8 TB stocare

Sitez: AllEn Services | System monitoring | Overview

AllEn Services Status

What is this about?

PANDA Grid Machines

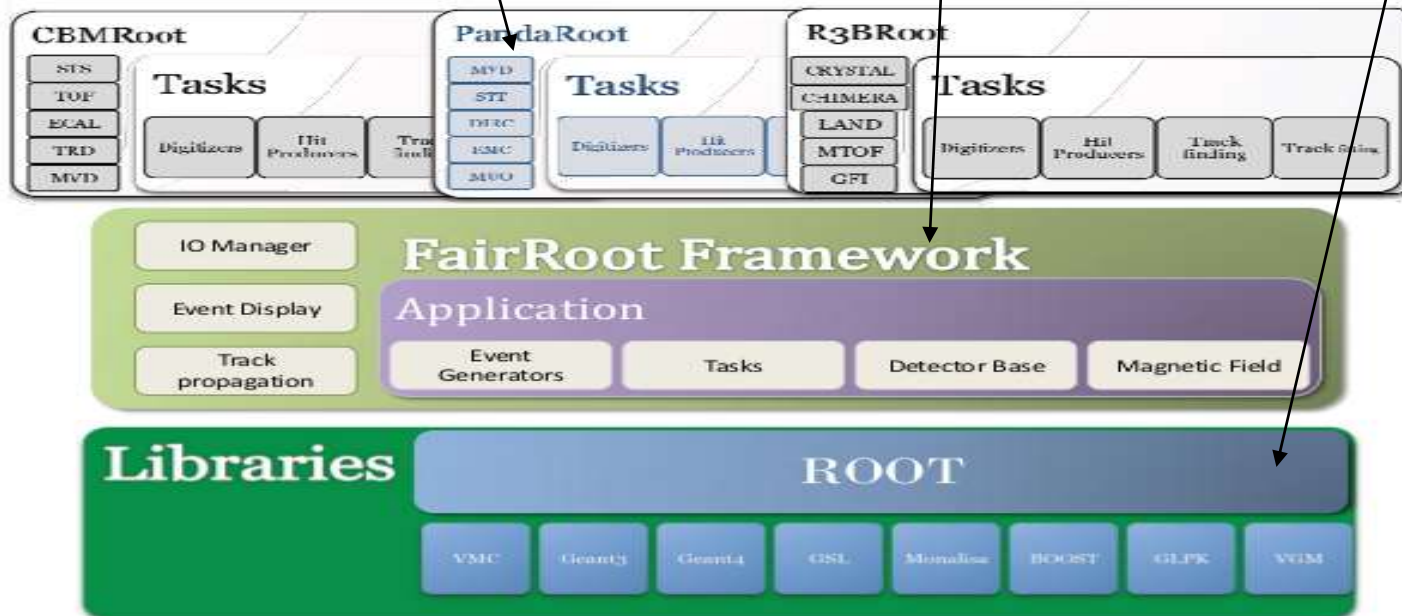
Site	Machine	VOROS	AllEn version	ML	AllEn services			Proxy timeout
					CE	CM	CM/epart	
1. ASTI		202.96.103.63						
2. Bologna-CHAI		gobov-panda22.znet.unibo.it						
3. Bucharest		parabola01.upae.ro						
4. Cluj-Napoca		torres-graff1.research.ubbcluj.ro						
5. Debrecen		ispanda01.dtt.hu						
6. GridSectorGSI		ispandagr01.gsi.de	v2.00.23					100k
7. GSI		ispandagr01.gsi.de						
8. GSI-ICARUS		ispandagr01.gsi.de		CM/	CM/	CM/		
9. GSI-UESIR		ispandagr01.gsi.de						
10. Juelich		ispandagr01.gsi.de						
11. KVI		ispandagr01.gsi.de						
12. KVI-ORIS		ispandagr01.gsi.de						23.34
13. Mainz		ispandagr01.gsi.de						
14. Orsay-2G		ispandagr01.gsi.de						
15. RUT		ispandagr01.gsi.de						2.42
16. Torneo-Bokonia		ispandagr01.gsi.de						
17. Torino-CRICAM		ispandagr01.gsi.de						21.50
18. Torino-PBS		ispandagr01.gsi.de						4.90
19. Vienna		ispandagr01.gsi.de						25.58

Repository Home | PANDA Web Page | Contact Admin | Links



Panda – infrastructura software

Frameworkul - **PandaRoot** este construit pe baza unui cadru de lucru general, comun pentru toate marile experimente de la FAIR, intitulat **FairRoot** si pe un set de biblioteci de programe de utilitate generala folosite in comunitatea HEP, intitulat **external packages**



Activitati:

- reactualizarea periodica a prin instalarea de versiuni noi ale cadrului de lucru PandaRoot si a pachete externe de programe,
- Asigurarea functionarii neintrerupte a sitului din IFIN-HH pentru activitatile de simulare efectuate in sistemul GRID



Rezultate-1

Pandaroot – pachete instalate in momentul de fata

Packages on sites															
Packages \ Sites	Count	ASTI	Bologna	Bucharest	Chicago	Dubna	GSI	Juelich	KVI	KVI-2G	Mainz	SUT	TorinoCream	TorinoPBS	Vienna
pbarprod@mlcert::1.1	6														
pbarprod@panda_extern::apr13	9														
pbarprod@panda_extern::dec13	1														
pbarprod@panda_extern::jan12	1														
pbarprod@panda_extern::may11	1														
pbarprod@panda_extern::sep12	1														
pbarprod@pandaroot::mar14	9														
pbarprod@pandaroot::nov11	1														
pbarprod@pandaroot::nov12	1														
pbarprod@pandaroot::oct14	8														
pbarprod@pandaroot::rev19237	1														
pbarprod@pandaroot::rev19237_patch	1														
pbarprod@pandaroot::rev20840	5														
pbarprod@pandaroot::rev21574	7														
pbarprod@pandaroot::rev25373	2														
pbarprod@pandaroot::rev_simone	6														
pbarprod@pandaroot::rev_simone2	5														
pbarprod@pandaroot::scrut14_24830	9														
pbarprod@urqmd::root529	1														
TOTAL		0	4	9	0	6	0	8	0	9	16	0	9	4	10

Matrix updated every half hour.

Rezultate-2

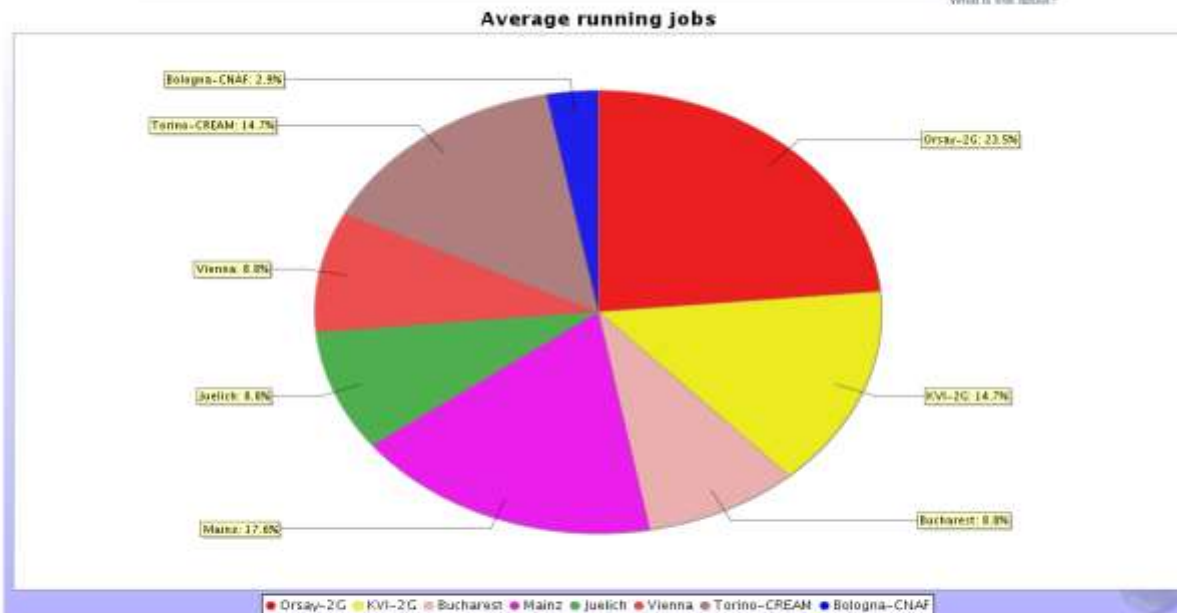
8.6% din totalul joburilor de simulare din PANDA in ultimele 3 luni au fost rulate pe situl din IFIN-HH

Series (3) | Options (3) | Alternative Views (3)

Data selection: History | Function: Average

Interval selection: 3 months | or | 2014-06-27 07:00 | - | 2014-11-26 12:00 | Plot

What is this about?



Activitati propuse

- Adoptarea sistemului *git* pentru controlul versiunilor pentru pachetele externe si PandaRoot, in locul sistemului *subversion (SVN)*, folosit pina in prezent, ultima versiune instalata, *oct14* fiind ultima gestionata cu ajutorul sistemului *SVN*.
- Trecerea la versiuni mai noi ale sistemului de operare Linux: SLC6.6, sau CC7 pe serverele sitului PandaGrid din IFIN-HH . Actiunea aceasta este importanta in viitor pentru implementarea sistemului ALFA, un cadru software de lucru comun ALICE-FAIR.
- Cresterea ponderii contributiei sitului PandaGrid din IFIN-HH la activitatile de simulare pentru experimentul PANDA.
- cresterea puterii de calcul prin adaugarea de noduri noi de calcul si marirea capacitatii de stocare