

EURISOL Town Meeting Pise, 2nd July 2018 Nicolas Ménard



Introduction

What is CRIBE, Team and Participants

Historical review of developments

From chartbeams (2016) to CRIBE (2018) through ECOS

Focus on CRIBE









•CRIBE : Chart of Radioactive Ion Beams from Europe

Two objectives

 Collecting data from partner facilities and gather it to a uniform database

 Developing a web service providing a chart of ion beams from the database

•Facilities :

S3-GANIL, SPIRAL1-GANIL, ALTO-IPNOrsay, ISOLDE-CERN, SPES-LNL, JYFL

CRIBE

•The team :

- Manssour Fadil (GANIL/Caen) : coordination
- Marek Lewitowicz (GANIL/Caen) : coordination monitoring
- Nicolas Ménard (GANIL/Caen) :technical and development monitoring
- Mateusz Celary (IFJ-PAN/Krakow) : development
- Yohann Jacquier (Normandy University/Caen) : development
- AppliCaen (ENSICAEN/Caen) : development
- Paul Jourdan (Normandy University/Caen) : study and analyzisPierre-Marie Briéda (Normandy University/Caen) : specifications

To keep in mind : Architecture



Chartbeams

•Chart of produced or potentialy produced ion beams in GANIL facilities

·Filtered by :

•Stable ions : Cyclotrons, LINAC •Radioactive ions : SPIRAL1, S3 and SPIRAL2-Phase2 •Provide detailed data (PDF file)

Development

 First version in 2011 followed by a major upgrade in 2016 (Jacques Everwin – Normandy University)

•Technologies in use :

LAMP : Linux, Apache, MySql, PHP

MVC : model (data) - view (interface) - controller (logical part)

HTML, CSS, JavaScript,

Virtualization Proxmox



Chartbeams

Administration tool

For authenticated user only, one account for GANIL

Adding or modifying an element

Adding and updating available colors

Advanced search tool

Adding and modifiyng items of the menu

Adding and replacing data file per element (not per isotop)

Q Re	chero	hez l'isotop	Recherche	uhaitez modif	ier					
z	N	Symbole	Nature	Modifier	Supprimer	Pour Z = 4 et N = 4				
4	1	58e	Radioactive	1	*	Nature du noyau				
4	2	68e	Radioactive	1	. H	Radioactive	•			
4	3	78e	Radioactive	1	*		Pr	oduced	To Be Produced	Not Produced (yes
4	4	88e	Radioactive	1	×	Cyclotrons				0
4	5	98e	Stable	1	ж	LINAC				0
4	6	108e	Radioactive	1	×	SPIRAL1				0
4	7	118e	Radioactive	1	×	53				0
4	8	128e	Radioactive	1	×	SPIRAL2-Phase2-Sokw				0
4	9	138e	Radioactive			test				0
4	10	148e	Radioactive	1	×	Valider la modification	An	uler		
		158a	Ratioartive							

Adding and udating (show in the web service, mail, url of website, etc.) installation

 $\mathcal N$ izualisation and modification of isotops : produced, to be produced, not produced for each facility

Publication in two phases :

modification of an intermediate table of the database
 after validation updates are published

Chartbeams - Mendeleiev Extension (2018)

Goal and Development

- Providing a periodic table view of chartbeams
- Using the data in the bdd to generate the detailed view of an element and the PDF

Period	1																	XVI
		1		ALL FACILITIES	5		STABLE IONS I	ACILITIES		RADIOACTIVES	IONS FACILITI	ES						
hell K	Ĥ Hydrogen						CYCLOTRO	VS		S3			XIII	XIV	XV	XVI	XVII	He
2 hell L	3 Li Libium	4 Be Beryllum				Ľ	j LINAC		e	SPIRAL 1	vase 2-50kWatt		5 B Boron	6 C Carbon	7 N Nitrogen	8 O Daygan	9 F Fluorine	30 Neo
3 hell M	11 Na Sodium	12 Mg Magnesium		IV	v	VI	VII	VIII	IX	x	х	XII	13 Al Aluminum	j4 Si Silicos	15 P Phasphoras	35 S Sultar	17 Cl Chlorine	38 Ar Ango
4 heli N	23 K Potessium	20 Ca Calcium	21 Sc Scandium	22 Ti Titanium	23 V Wanadium	N Cr Chronium	25 Mn Mangarese	25 Fe Iron	27 Co Cebalt	25 Ni Nickel	29 Cu Copper	30 Zn Zinc	31 Ga Catlium	32 Ge Germanium	33 As Arsenic	34 Se Selenium	35 Br Bromise	X Ki Kiyp
5 hell O	37 Rb Rubidium	38 Sr Strontium	38 Y Ttorium	40 Žr Zirconium	45 Nb Nichlum	42 MO Molybdenum	41 Tc Technetium	44 Ru Ruthenium	di Rh Rhodium	46 Pd Palladum	4g Silver	48 Cd Cadmium	a) In Indium	50 Sn Tin	Sb Antimony	S2 Te Tellurium	S3 I Iodine	S Xu Xen
6 hell P	SS Cs Cesium	55 Ba Bariun	57 - 71 Ianthanide	72 Hil Helmium	73 Ta Tantalum	74 W Tungsten	75 Re Rhesium	75 OS Osmium	17 Ir bidum	78 Pt Platnum	71 Au Geld	80 Hg Mercury	81 Ti Thatium	R2 Pb Lead	83 Bi Bismuth	M Po Polosium	85 At Astatine	R
7 hell Q	87 Fr Francium	80 Ra Radium	89 - 103 actinide	104 Rf Rutherfordium	305 Db Dubnium	306 Sg Seaborpium	137 Bh Bohrium	330 Hs Hessium	139 Mt Meitnerium	130 Ds Dwmstadtium	Rg Rg Roentpenium	112 Cn Copernicium	113 Nh Nihonium	El Fi Fierevium	115 Mc Moscovium	136 Lv Livermorium	117 Ts Texnessine	D Ogane
Elements the select	that are PRODUC ted facilities	ED OR TO BE PRI	DOUCED by	57 La	Si Ce	50 Pr	en Nd	et Pm	62 Sm	EU EU	ei Gd	65 Tb	65 Dy	67 Ho	es Er	eo Trn	ло Yb	ž

- ·linking the web service to the existing chart
- This year by Yohann Jacquier (intern from Normandy University)

Technologies

LAMP (Linux, Apache2, MariaDB, PHP), Symfony (Doctrine, TWIG) version 3.2, Javascript, HTML, CSS

Chartbeams - Mendeleiev Extension

Adminstration tool

An authenticate adminstrator can :

Modify the data in the database for each facilityModify the facilties

•Modify the attributes of facilities and elements

•Add a new beam for an element and a facilty

Usefull search tool

•Still to do :

 Connection between chartbeam N-Z and Mendeleiev

Adding publication phase

'Update to Symfony framework

ziement du faisceau .	7 - Nitrogen (N)	•
Nombre de neutrons :		
Commentaire :		(##, [1],)
Etat isomérique :	Gs	(Gs, m, n)
HalfLife :		36 36 36 36 36 36 36
CHARGE STATE LEB/ACB :		36 36 36 36 36 36 36
LEB (DESIR) :		36 36 36 36 36 36 36
Target :		36 36 36 36 36 36 36
Min Energy (Me∀/nucleon) :		36 36 36 36 36 36 36
Max Energy (Me∖/nucleon) :		36 36 36 36 36 36 36
Primary Beam (or reaction mecanism) :		36 36 36 36 36 36 36
Primary Beam Power on ECS Target (kW) :		36 36 36 36 36 36 36
Primary Beam Energy (Me∀/nucleon) :		36 36 36 36 36 36 36
	-	36 36 36 36 36 36 36

ECOS (European Collaboration on High Intensity Stable Beams)

•Chart of currently available and/or future stable ion beams from facilities in Europe

Filtered by facilities :

∘ALTO/IPN, GANIL, GSI, IFJ, JYFL, LNL-INFN, LNLS-INFN, SLCJ

 Filtered and colored by beam energy and/or beam intensity

Development

In 2013 by Laurent Fortin and Jason Stum (intern from Normandy University)

•Technologies in use :

LAMP : Linux, Apache, MySql, PHP

MVC : model (data) - view (interface) - controller (logical part)

HTML, CSS, JavaScript,

Virtualization Proxmox



ECOS

Administration tool

- No authentication but restricted access
- Adding and modifying lab, element, isotops
- Few data are in the database : energy and intensity
- Adding and associate a PDF file per lab and element
- Publication in two phases :
 - update of an intermediate table of the database
 - •after validation updates are published

	F	ormu	laire I	Données n	oyaux		
	Modifier Données	Aide Mod	ifier Données				
MENU			Labo	ratoire : ens-mm	Rechercher		
CUEIL	Isotope	Energie	(MeV/u)	Intens	ité (pps)	Modifier	Supprimer
IMENTS	H2	2.0	80.0	1000	10000000000	Modifier	Supprimer
TOPES	He 4	10.0	80.0	1000	100000000000	Modifier	Supprimer
ORATOIRES	Li 6	1.6	8.7	1000	10000000000	Modifier	Supprimer
NEES NOYAUX	Li 7	13	7.4	1000	10000000000	Modifier	Supprimer
NEES FAISCEAUX	Be 9	16	55.0	1000	1000000000	Modifier	Supprimer
	B 10	1.6	6.5	1000	10000000000	Modifier	Supprimer
	B 11	14	55.0	1000	100000000000	Modifier	Supprimer
CATION	C 12	10	80.0	1000	100000000000	Modifier	Supprimer
	C 13	10	55.0	1000	100000000000	Modifier	Suparimer
	N 14	0.8	80.0	9000	100000000000	Modifier	Supprimer
	N 15	0.8	6.0	9000	1000000000	Modifier	Supprimer
	O 16	0.7	80.0	1000	100000000000	Modifier	Supprimer
	0 17	0.7	6.9	1000	1000000000	Modifier	Supprimer
	O 18	0.7	55.0	1000	100000000000	Modifier	Supprimer
	F 19	0.0	50.0	1000	10000000000	Modifier	Supprimer
	Ne 20	10.0	62.0	1000	100000000000	Modifier	Supprimer

CRIBE - focus - Development phases

·06/2017 :

Analysis and study : extracting good ideas, finding what is missing in previous chart, etc.

-09/2017 : Decision is taken to ask for the support of an web agency for the first part of the development

•Redaction of technical and functionnal specifications

•Search for the contractor

•Finally @ppliCaen from ENSICAEN is choosen

-30/10/2017 : launch meeting with the service provider

°4 students will work on our project

oseveral meetings will take place between november 2017 and march 2018

From march 2018 to july 2018

•despite several reminders and the support from GANIL, the result is not good enough to start in production

•thanks to Mateucz : several corrections and improvments : zoom, administration tool, data management, ISOLDE connexion, etc.

•but ... still need to be improve : visual aspect, zoom, velocity, administration tool, data management, etc.

Functionnalities

- Chart view and Mendeleiev
 view
- All data are in the database=> dynamic request

Technologies

 LAMP (Linux, Apache, MariaDB, PHP), virtualization (Proxmox), Symfony framework (3.4 with Doctrine, Twig, etc.), CSS, XML, XSD, JSON







(Thanks to M. Celary)

•Data

 First set of data supplied in Excel files by:SPES, IGISOL (Fibland), GANIL for SPIRAL1 and S3

Data from ISOLDE supplied by a web service

Format validated by all the participants

Classification

Four categories

- •A : measure in experiment
- •B : extrapolated from experiment data
- •C : measurement scaled by transmission
- •D : calculated

Unified data

Z	A	Metastability	Half-life	Intensity [pps]	Intensity estimation method	Purity	Primary beam	Primary beam intensity [pps]	Target	Availability	Comments/ Link to details
(INT)	(INT)	(STRING)	(STRING)	(INT)	(STRING)	(INT)	(STRING)	(INT)	(STRING)	(STRING)	(STRING)
1	1	g	999.9s	9,99E+02	[A]	99.9	xyz	9,99E+02	xyz	2019	www.eg.com
2	2	х	< 3E+04h	9,99	[B]	99,9	xyz	9,99	xyz	2020	xyz
3	3	m	?	9.99	[C]	9	xyz	9.99	xyz	available	xyz
4	4	m1	xyz	9.99E-9	[D]		xyz	9.99E-9	xyz	2017	хуz

Compiled data

Z	A	Metastability	Half-life	Intensity [pps]	Intensity estimation method	Purity	Primary beam	Primary beam intensity [pps]	Target	Availability	Comments/ Link to details
2	6	g	0.8 s	2E+08	[A]		13C	1,6E+13	Carbon	2017	https://u.ganil- spiral2.eu/chartbeams/
2	6	g	0.8 s	2,5 E+6	[A]		13C	1,6E+13	Carbon	2017	https://u.ganil- spiral2.eu/chartbeams/
2	6	g	0.8 s	15642541	[D]		13C	7,69E+12	Carbon	2019	https://u.ganil- spiral2.eu/chartbeams/
2	6	g	0.8 s	9385525	[D]		160	4,93E+12	Carbon	2019	https://u.ganil- spiral2.eu/chartbeams/

•Administration tool :

For authenticate user only

- Advanced search tool
- Upload data from file

≡ CRIBE Admin Pan	el		
BEAMS AND TARGETS	Isotope		Q Search Add Isotope
O Preacc Beams <		a mass number	Stable Actions
Postacc Beams <	Не	6	NO O Show 2 Edit Delete
D Targets <	He	5	NO Q Show & Edit Delete
	Не	4	YES Q Show & Edit Delete
D Messages <	Не	3	YES Q Show & Edit Delete
	н	7	NO Q Show & Edit Delete
Upload data from file	н	6	Q Show & Edit Delete
Accounts <	н	5	NO Q Show S Edit Delete
	н	4	NO Q Show & Edit Delete
Facilities <	н	3	NO Q Show & Edit Delete
Intensity Estimation Metc.	н	2	YES Q Show / Edit Delete
Isotopes ~	н	1	YES Q Show S Edit Delete
Add New	3406 - 3416 of 3416		# First / Devision Next > Lost >
Show all			« First « Previous Next > Last »
D Elements (

- Add beams (postAcc or preAcc), target (associate to facility), isotops, elements, facilities
- Manage user account

•Depending of the level access of the user and the associated facilities
 •Global administrator → EasyAdmin and Upload Panel : full access
 •Facility administrator → Upload Panel : access to selected facilities

•Coming next year :

- ·Unify in a single application all the development already made
- Improve the data insertion and update for both methods (file and web service)
- Improve the interface (CSS) and the adminstration tool (auto generated)
- Add duplication and update data in EasyAdmin interface
- Improve search option in EasyAdmin interface
- Add search option and delete button in Upload Panel
- Fix the instability of the Apache Service
- Deep tests of all the functionalities