



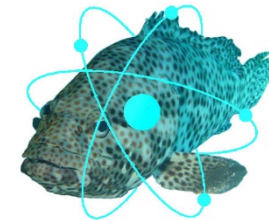
# *15<sup>th</sup> Workshop*

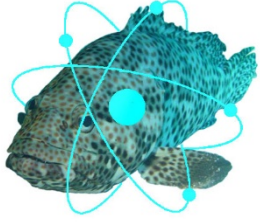
*on European Collaboration for  
Higher Education and Research in  
Nuclear Engineering & Radiological  
Protection*

*Portopalo di Capo Passero (Italy)  
2-5 June 2019*

## ***CHERNE: Prehistory and early days of the network***

***J. Ródenas, F. Tondeur  
T. Cechak, L. Musilek, H. Janssens,  
U. Scherer, F. Hoyler, D. Mostacci  
Founding members of CHERNE***



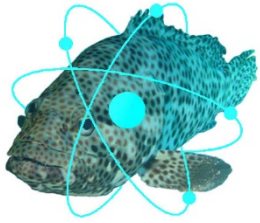


# *The prehistory of CHERNE*



- Where to go and dig?





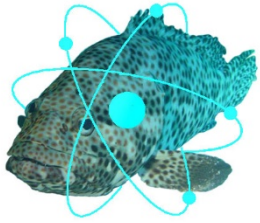
Maybe you believe that the prehistory of CHERNE began ...

- In Valencia ?
- Or in Prague ?



**NO !**





# *It was in Russia!*



**1999**

*A Russian colleague proposed to be invited in Brussels for a discussion about a possible cooperation with ISIB.*

*We had no money for that, but we got an Erasmus grant to establish new contacts*

*with Central and Eastern Europe, and it was proposed to visit him.*

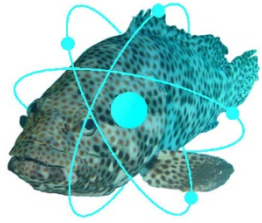
*We never received an answer ...*

*The grant was finally used to visit the Czech Technical University and to establish the Erasmus cooperation between CTU and ISIB.*

*A central element was the development of a 3-year intensive program (IP) :*

**PAN**

*A third partner was requested: Universitat Politecnica de Valencia accepted.*

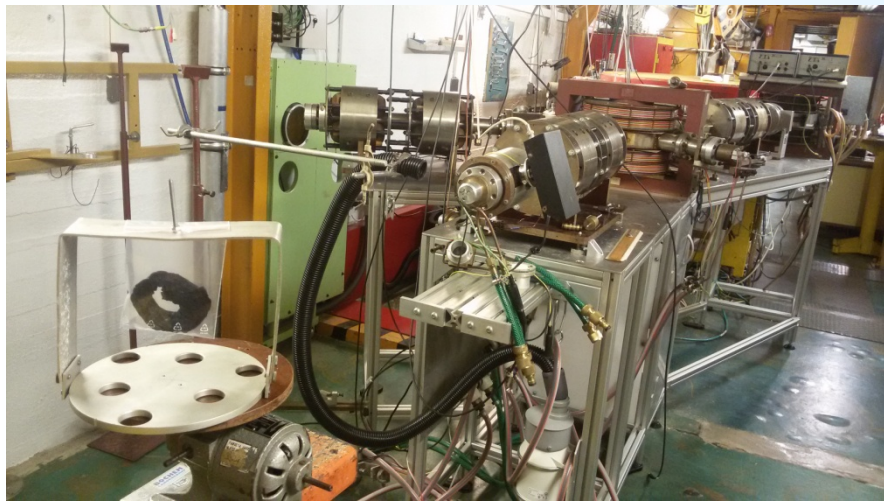


# *Main argument of the IP: sharing the access of students to nuclear facilities*



Outstanding teaching equipment at CTU:

- ◆ The training reactor SPARROW
- ◆ Small accelerators: Van de Graaff Microtron

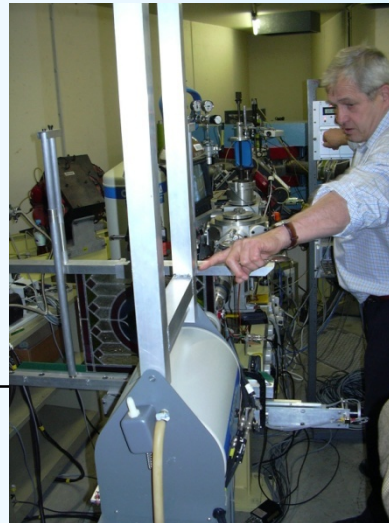


- Industrial X-ray tomography
- Many small-scale laboratory experiments

	PAN 1 - 2002	PAN 2 - 2003	PAN 3 - 2004
Where?	Prague	Prague	Mol-Liège-Brussels
Students	19	23	24
Partners	CTU-ISIB-UPV	Same + AcUAs-HL	Same
Reactor exer.	Sparrow	Sparrow	BR1
Accelerators exercises	Microtron, Van de Graaff	Microtron, Van de Graaff	LINAC, Van de Graaff, cyclotron
Lectures (~1h)	9	11	8
Lab. exercises	5	6	6
Visits , many with demos	Radiotherapy, Nuclear medicine, gamma knife Research centre Rez: reactor, cyclotron. Czech metrology institute	Radiotherapy, Nuclear medicine, g knife, PET. Research centre Rez: reactor, cyclotron. Czech metrology institute	Radiotherapy, Nuclear medicine, PET. Radwaste treatment & geological disposal. Environmental radioactivity lab.
Other visits	NPP Temelin	-	-

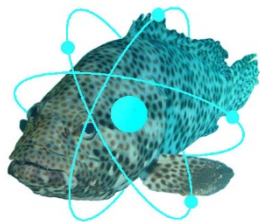


	PAN 1 - 2002	PAN 2 - 2003	PAN 3 - 2004
Oral presentation	no	yes	Yes with ½ day preparation
Social events	1	2	3
Accommodation	CTU hotel	CTU residence	Holiday resort + youth hostel
Free time	weekend	weekend	Weekend + 1 afternoon



***Important outcome of IP's:***  
*2-week contacts between professors*  
*= excellent opportunity to discuss possible cooperations like professor exchanges and research collaborations.*





# SPERANSA:

## Stimulation of Practical Expertise in Radiological And Nuclear SAfety



Wish of the partners: continue with the same formula as PAN, but a new accent was needed to propose a « new » project → **SAFETY**

Proposed for 2005 again as a « Belgian project »: not accepted nevertheless organized in Prague without Erasmus grant

Too many « Belgian projects »

→ Re-proposed for 2006 as a « Czech project » coordinated by CTU: accepted !

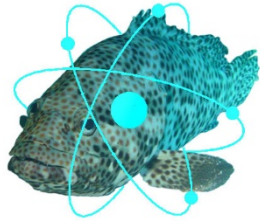
SPERANSA 2005 = « lighter » version of PAN-2003:

- ◆ No social event included
- ◆ 2 free afternoons
- ◆ Kept: Sparrow reactor – Cut: Microtron (not available anymore)
- ◆ Kept: Research centre Rez – Cut: Metrological institute – Added: Tokamak + Asterix Laser System
- ◆ Increased fee + subsidy of partner institutions
- ◆ Lesson : *it is possible without Erasmus subsidy* ....

SPERANSA 2006-2008: .... but it is much easier with a subsidy !

**2005 : birth of CHERNE**





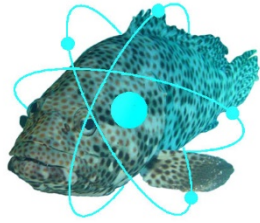
# BIRTH OF CHERNE

2005



- meeting organised in Diepenbeek on 22 October 2004
- **Proposal: a meeting to discuss the situation and prepare activities, to be held in Valencia enjoying good weather, sun, beach, food,...**
- at UPV on 4-6 May 2005
- **19 participants from 9 institutions: UPV, UPM, UPC, ISIB, XIOS, AcUAS, CTU, UBologna plus Cofrentes NPP.**
- visit to Cofrentes NPP was highly interesting
- in the bus coming back from Cofrentes  
it was agreed a list of subjects to discuss during the Final Round Table:
  - ◆ ERASMUS MUNDUS
  - ◆ sharing non-presence courses
  - ◆ collaboration in smaller groups for short periods of lectures
  - ◆ incorporation to ENEN
  - ◆ opening a forum to continue discussion via web page or similar
  - ◆ creation of an informal group.





# BIRTH OF CHERNE

2005



The last option was adopted, an informal network.

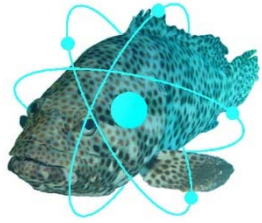
Its main objectives were:

- 1) *To develop collaboration on education, training and research between the partners,*
- 2) *To encourage bilateral ERASMUS agreements, in particular for staff exchanges,*
- 3) *To organise an annual meeting,*
- 4) *In the 2006 meeting, partners should present proposals for activities to be organised,*

with a wide scope, easily integrating new members, and offering cheap educational activities to the students. The organization and goals of the network were described in a common declaration signed by the members.

Founders: **UPV, ISIB, XIOS, AcUAS, CTU, UBologna**

**CHERNE** = Cooperation for High Education on Radiological and Nuclear Engineering.



# BIRTH OF CHERNE

2005

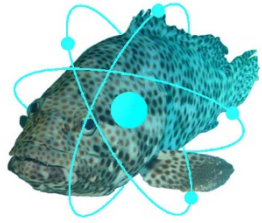


- gastronomic and social program was attractive



*Cherne is the name of a fish in Portugal and in Canary Islands. However, François does not like fish. Therefore, he proposed **CARNE** (meat in Spanish) as the name of the network. I am not sure about the meaning. Probably it was “Cooperation for Activities on **R**adiological and **N**uclear **E**ngineering”. Finally, **CHERNE** was adopted.*





# GROWTH OF CHERNE

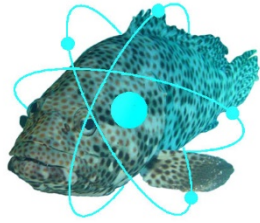
2006



- 2<sup>nd</sup> workshop in Valencia, at UPV.
- March 2006, close to Fallas.
- 28 participants from 17 institutions, from 9 different countries.
- Politecnico Milano and UPC joined the network

**During 2006 Università de Messina, KSU, Università de Catania, Zittau Hochschule, and Instituto Tecnico Nuclear de Lisboa, joined the network. Universidade Coimbra did in 2007, reaching the number of 14 members in 2008**





# GROWTH OF CHERNE

2006



**Intense discussions on the rights and duties of members, on the admission of research centres, companies, and individuals.**

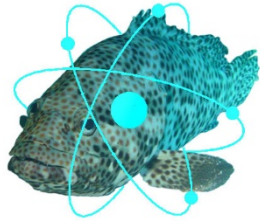
## Social activities

- The day before chocolate and bunyols at Planeta Azul
- Concert by the Polytechnic Chorus
- Mascletà
- farewell lunch at Canyamel
- dinner at Los Toneles.



*The farewell lunch included a lot of seafood, typical lunch at La Albufera. When everybody was very satisfied, I told them: “What about the paella?” and everybody answered: “Paella? It is not possible, Pepe.” Then, I replied: “I will attempt to cancel it.” I went to the bathroom and came back telling to everybody: “Fortunately, I could cancel the paella!”*





# GROWTH OF CHERNE

## 2007



Feb. 2007: Annual workshop in Prague, organised by CTU, during SPERANSA

18 participants , 11 institutions

Cool weather and serious work

Discussion of new intensive courses, for 2007

(JUNCSS, RAPIX-NOCOS) or later (PSA, MC)

as well as possible new types of activities

(e-learning, project-based activity).



Recurrent discussion since 2006 about finances: the majority always discarded the idea of finding subsidies and sponsors for the network itself. Each partner can find resources for its own CHERNE activities.

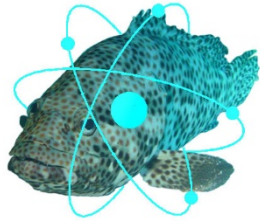
**Technical visit: nuclear research centre Rez.**

**Social visit of Melnik castle,**

**with workshop dinner.**







# GROWTH OF CHERNE

## 2008



May 2008: Annual workshop in Favignana island, organised by Bologna, Catania & Messina

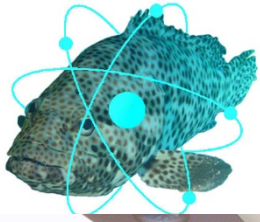


### **Innovative organisation:**

- Inclusion of a scientific session
- Publication of scientific papers in a scientific journal
- Participation of students involved in the exchanges

Workshop dinner with typically Sicilian food





## Back to SPERANSA 2006-2008



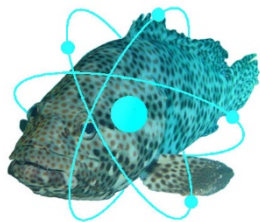
### ***Social activity ...***

*The farewell dinner in Jülich took place in a private brewery. After the guided tour and a nice meal three of our students started a competition - who can swallow the biggest amount of beer without interrupting. Well the Italian failed totally, the Czech candidate (quite a big guy and convinced to win) did a good job, but the slim student from Jülich opened his throat and he would have continued if the glass would have been bigger! So this game was won by Germany!*



	SPERANSA 2006	SPERANSA 2007	SPERANSA 2008
Where?	Mol - Jülich	Prague	Mol - Brussels
Students	23	23 ?	24
Partners	CTU-ISIB-UPV- AcUAs-HL	CTU-ISIB-UPV- AcUAs-HL	Same + <b>Politecnico Milano</b>
Reactor exercises	BR1	Sparrow	BR1
Accelerators exer.	LINAC – Van de Graaff	Van de Graaff	LINAC – Van de Graaff
New exercises	Work with hot cells Simulation of transport accident		Same as 2006
New activity	Round table on ethical aspects	3 round tables: ethics, future of nuclear fission, radiation protection	2 round tables: ethics, nuclear energy & sustainable development
Visits	Tokamak, radwaste processing, geological disposal	Tokamak, Laser system Radiotherapy, PET	Radwaste processing, geological disposal, radiotherapy, nuclear medicine, environmental radioactivity lab.
Other visits	Guided tour of Aachen		Guided tour of Brussels Visit of traditional brewery



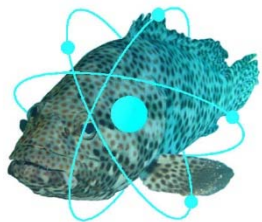


# Early projects of CHERNE: JUNCSS



## Jülich Nuclear Chemistry Summer School

- **Sharing the well-equipped radiochemical laboratory of AcUAs.**
- Organised without Erasmus support in 2007, submitted as a Czech IP and accepted in 2008-2009, continued without support in 2010-2011.
- Few lectures, mostly laboratory work
- Week 1: radiation measurements, week 2: radiochemical experiments
- Summer school : during holidays
- Not many students : 10(2007), 16(2008), 13(2009), 14(2010), 15(2011)
- Visit of the research centre: Tokamak, reactor decommissioning, radionuclide production
- Accommodation in apartments of the visitor's residence of the research centre.



# JUNCSS



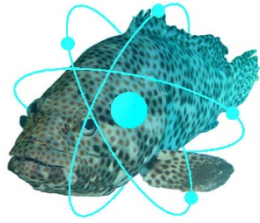
## ***JUNCSS 2010: just-in-time !***

*In summer 2010 AcUAs-Jülich moved to a new building.*

*Because of some problems, the new radiochemical lab was not yet licenced 10 days before the course.*

*The problems could be solved, and finally the lab was moved on Thursday, JUNCSS starting the next Monday.*





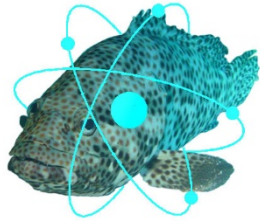
# Early projects of CHERNE: RAPIX-NOCOS



## Radiation protection in non-conventional sectors

- A 2-week intensive course of ISIB and XIOS (ex-HL) open to CHERNE students
- Organized in 2007 & 2008, then oriented to environmental radioactivity (XIMER)
- About radon, NORM, exposure of air crews, ...
- Only few lectures; a few visits (Megaport Antwerp)
- Laboratory and in situ measurements + software exercises
- Final presentation by the students
- Not an Erasmus IP
- Sponsors covered ~50%: Federal Agency of Nuclear Control, Belgian Association of Radiation Protection, Canberra, Institute of Radio-elements.
- Small fee (<100 €) for accommodation (in youth hostel) and local transport
- Subsistence and travel to Belgium not covered.
- Maximum 16 students





# After 2008 : the maturity of CHERNE



Still more partners

More Erasmus IP's and other intensive courses

Annual workshops

More other activities

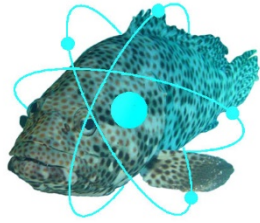
2014: ERASMUS +

end of the IP-era

Strategic partnerships

New generation

... another story to tell in a future CHERNE workshop



# Legacy of early CHERNE



A persistent network of exchanges and collaborations despite the evolution of Erasmus and the change of generation.

Strong and friendly relations between the partners.

Unique experiences for the students.

*Cherne is an informal network! And the net is able to tie people very close. In retrospective one of the most rewarding impacts of the courses is the fact that it resulted in strong relations among the participants and even at least in one ( may be even in more) marriage! (Frieder)*

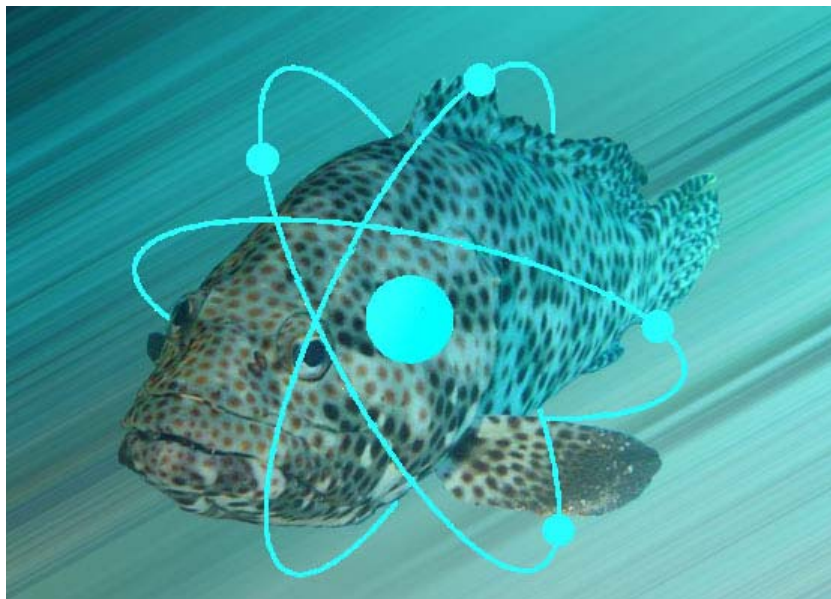
***A personal touch ...***

*CHERNE occupied a large part of the last 15 years of my career.*

*CHERNE gave me a lot of work, but also a lot of satisfaction. New friends.*

*And above all, CHERNE offered me in 2007 the reseach collaborator I needed.*

***MANY THANKS TO CHERNE ! (and to the Russian colleague!) (François)***



***Thank you for your  
attention***