

CHANDA

SOLVING CHALLENGES IN NUCLEAR DATA FOR THE SAFETY OF EUROPEAN NUCLEAR FACILITIES

FP7-Fission-2013 Approved Project

CP-CSA (Combination of Collaborative projects, Coordination and Support Actions)

Fission-2013-4.1.2: Support to a pan-European Integrated Research Infrastructure Initiative for increased safety of nuclear systems at EU level

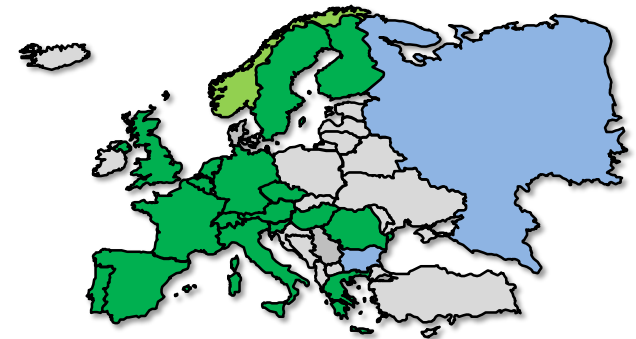
Submitted: [Nov 13th, 2012](#). Start: [1 Dec. 2013](#), Kick-off: [≈ Dec. 2013](#)

Duration proposed: [48 months](#). EU funding: [5.4 MEuro](#).

Participants:

CIEMAT, ANSALDO, CCFE, CEA, CERN, CNRS, CSIC, ENEA, GANIL, HZDR, IFIN-HH, INFN, IST-ID, JRC, JSI, JYU, KFKI, NNL, NPI, NPL, NRG, NTUA, PSI, PTB, SCK, TUW, UB, UFrank, UMainz, UMan, UPC, UPM, USC, UU, UOslo.

Coordinator: **Enrique M. GONZALEZ ROMERO**



CHANDA: 35 participants (18 countries)

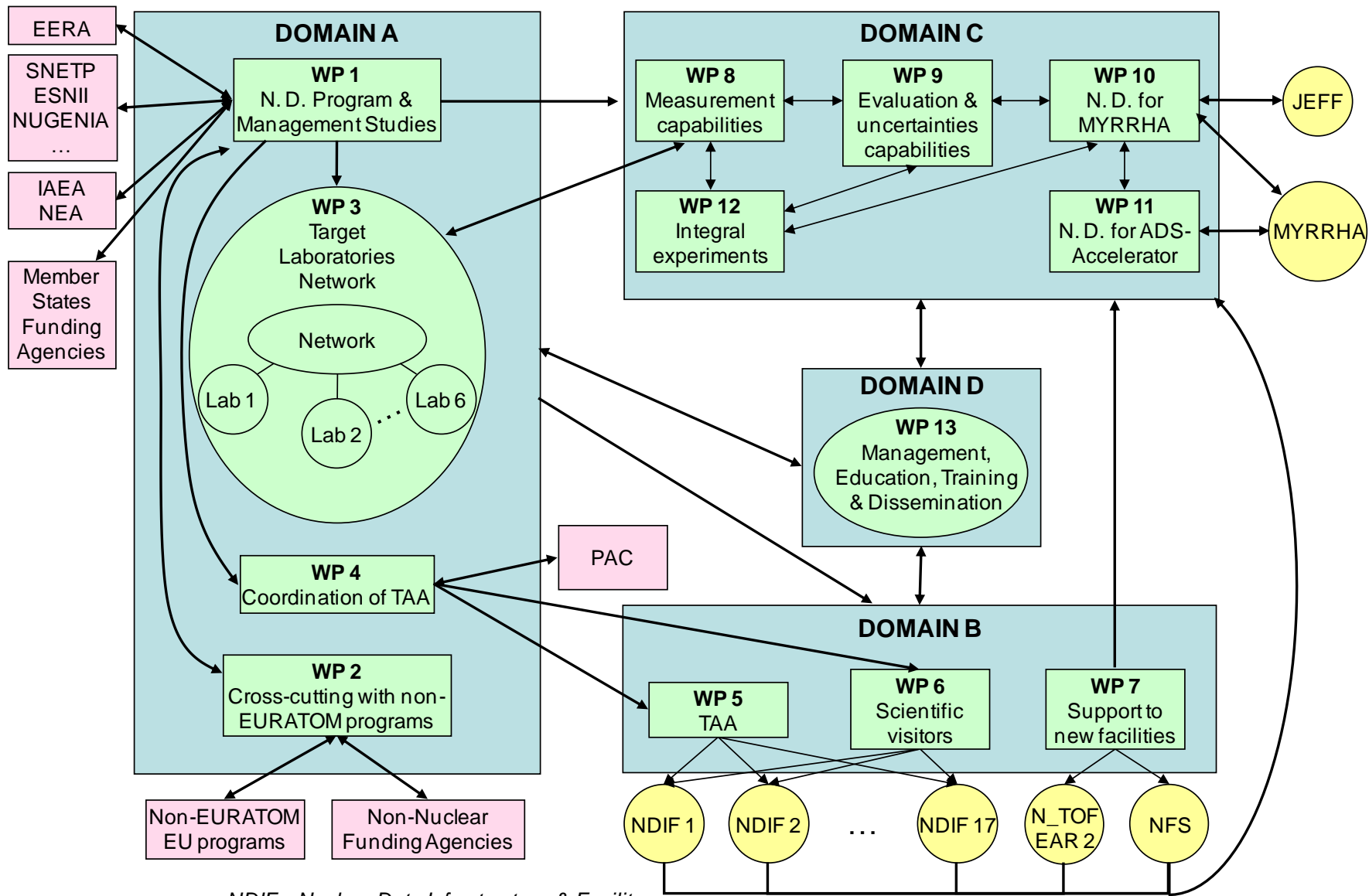
Part. #	Participant organisation name	Short name	Country
1. C	CENTRO DE INVESTIGACIONES ENERGETICAS, MEDIOAMBIENTALES Y TECNOLOGICAS	CIEMAT	Spain
2.	ANSALDO NUCLEARE SPA	ANSALDO	Italy
3.	UNITED KINGDOM ATOMIC ENERGY AUTHORITY	CCFE	U.K.
4.	COMMISSARIAT A L ENERGIE ATOMIQUE ET AUX ENERGIES ALTERNATIVES	CEA	France
5.	EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH	CERN	Switzerland
6.	CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE	CNRS	France
7.	AGENCIA ESTATAL CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS	CSIC	Spain
8.	AGENZIA NAZIONALE PER LE NUOVE TECNOLOGIE,L'ENERGIA E LO SVILUPPO ECONOMICO SOSTENIBILE	ENEA	Italy
9.	GRAND ACCELERATEUR NATIONAL D'IONS LOURDS	GANIL	France
10.	HELMHOLTZ-ZENTRUM DRESDEN-ROSSENDORF EV	HZDR	Germany
11.	INSTITUTUL NATIONAL DE CERCETARE -DEZVOLTARE PENTRU FIZICA SI INGINERIE NUCLEARA "HORIA HU	IFIN-HH	Romania
12.	ISTITUTO NAZIONALE DI FISICA NUCLEARE	INFN	Italy
13.	ASSOCIACAO DO INSTITUTO SUPERIOR TECNICO PARA A INVESTIGACAO E DESENVOLVIMENTO	IST-ID	Portugal
14.	JRC -JOINT RESEARCH CENTRE- EUROPEAN COMMISSION	JRC	Belgium
15.	INSTITUT JOZEF STEFAN	JSI	Slovenia
16.	JYVASKYLAN YLIOPISTO	JYU	Finland
17.	MAGYAR TUDOMANYOS AKADEMIA ENERGIATUDOMANYI KUTATOKOZPONT	KFKI	Hungary
18.	NATIONAL NUCLEAR LABORATORY LIMITED	NNL	U.K.
19.	NUCLEAR PHYSICS INSTITUTE OF THE ASCR VVI	NPI	Check Rep.
20.	NPL MANAGEMENT LIMITED	NPL	U.K.
21.	NUCLEAR RESEARCH AND CONSULTANCY GROUP	NRG	Netherlands
22.	NATIONAL TECHNICAL UNIVERSITY OF ATHENS	NTUA	Greece
23.	PAUL SCHERRER INSTITUT	PSI	Switzerland
24.	PHYSIKALISCH-TECHNISCHE BUNDESANSTALT	PTB	Germany
25.	STUDIECENTRUM VOOR KERNENERGIE	SCK	Belgium
26.	TECHNISCHE UNIVERSITAET WIEN	TUW	Austria
27.	UNIVERSITATEA DIN BUCURESTI	UB	Romania
28.	JOHANN WOLFGANG GOETHE UNIVERSITAET FRANKFURT AM MAIN	UFrank	Germany
29.	JOHANNES GUTENBERG UNIVERSITAET MAINZ	UMainz	Germany
30.	THE UNIVERSITY OF MANCHESTER	UMan	U.K.
31.	UNIVERSITAT POLITECNICA DE CATALUNYA	UPC	Spain
32.	UNIVERSIDAD POLITECNICA DE MADRID	UPM	Spain
33.	UNIVERSIDADE DE SANTIAGO DE COMPOSTELA	USC	Spain
34.	UPPSALA UNIVERSITET	UU	Sweden
35.	UNIVERSITETET I OSLO	UOslo	Norway

Domain A (DMA): **Coordination activities**, enabling the development of a common vision, of a research roadmap for several years, and of the management structure to make this happen, including WP1 to WP4. This Domain covers all the coordination activities. DMA includes WP1 to WP4.

Domain B (DMB): **Joint research services** and access offered to scientists not belonging to countries with relevant research infrastructures, based on the excellence of their proposed research work by supporting the transnational access to existing infrastructures, and the building and commissioning of NFS and n TOF EAR2 break-through facilities open to scientists not belonging to the host countries. DMB includes WP5 to WP7.

Domain C (DMC): **Joint research activities to upgrade the capacities of the EU nuclear data facilities** by development and validation of methodologies of experimental techniques, detection systems, integral measurements, evaluation methods and uncertainty estimation. DMC includes WP8 to WP12.

Domain Management (DMM), will take care of the management, education and training activities and the dissemination of its progress and results.



NDIF = Nuclear Data Infrastructure & Facility

WP	Work package title	Type of activity	Lead partic.	Person-months	Start month	End month
WP1	Global coordination of nuclear data program and capabilities	COORD	CIEMAT	20.7	1	48
WP2	Coordination of cross-cutting activities with programs beyond EURATOM in Horizon 2020	COORD	CEA	12.1	1	48
WP3	Coordination of actions for the development of a network for nuclear target preparation and characterization	COORD	CNRS	17.9	1	48
WP4	Calls for proposals of Transnational Access to the consortium facilities and their evaluation	COORD	HZDR	11.2	3	37
WP5	Support to experiments at consortium facilities	SUPP	JRC	0.9	4	48
WP6	Scientific support of experiments	SUPP	JRC	0.8	4	48
WP7	Support to Neutrons For Science and the short path n_TOF experimental area equipment	SUPP	CERN	107.3	1	36
WP8	Development and validation of new measurement capabilities and methodologies	RTD	CIEMAT	251.8	1	48
WP9	Development and validation of new nuclear data evaluation and application capabilities	RTD	NRG	102.7	1	48
WP10	Development of nuclear data for Myrrha reactor safety analyses	RTD	JRC	68.2	1	36
WP11	Development of a methodology for uncertainty assessment and minimization in ADS target and accelerator safety analyses	RTD	CEA	92.9	1	48
WP12	Development and validation of new integral experiments	RTD	CEA	68.2	1	48
WP13	Management, education and training	MGT	CIEMAT	16.1	1	48
	TOTAL			770.8		

WP1: Global coordination of nuclear data program and capabilities (CIEMAT)

Task 1.1 Development of a common vision and a research roadmap (*Task co-ordinator: NRG, Partners: All the others*).

Task 1.2: Coordination of nuclear data priorities for increased safety of nuclear systems with international organizations (*Task co-ordinator: JRC, Partners: CEA, NRG, ENEA, CIEMAT, CNRS*)

Task 1.3: Evaluation of options for sustainable management structure (*Task co-ordinator: CIEMAT, Partners: All the others*)

- how to integrate it in the R&D organization foreseen at Horizon 2020, and by technological platforms.
- evaluate the feasibility of a nuclear data [EERA Joint program](#), or equivalent solution (as a full program or as subprogram of the Nuclear materials)
- evaluate the feasibility to integrate resources and programs from different member states using long-term multilateral agreements between funding agencies represented by research organizations,
- Contact with national governments/ministries and funding agencies representatives

Deliverables

- D.1.1 Report on common vision and research roadmap for the EU nuclear data research; M24
- D.1.2 Report and recommendations on the feasibility of different options for sustainable management structure for the EU nuclear data R&D activities and capabilities; M42
- D.1.3 Report on nuclear data priorities for increased safety of nuclear systems; M48

WP2: Coordination of cross-cutting activities with programs beyond EURATOM in Horizon 2020 (CEA)

Task 2.1: Identification of the possible synergies with fundamental physics and other applications (Task co-ordinator: CEA, Partners: CIEMAT, NTUA, INFN, USC, IRMM, NRG...)

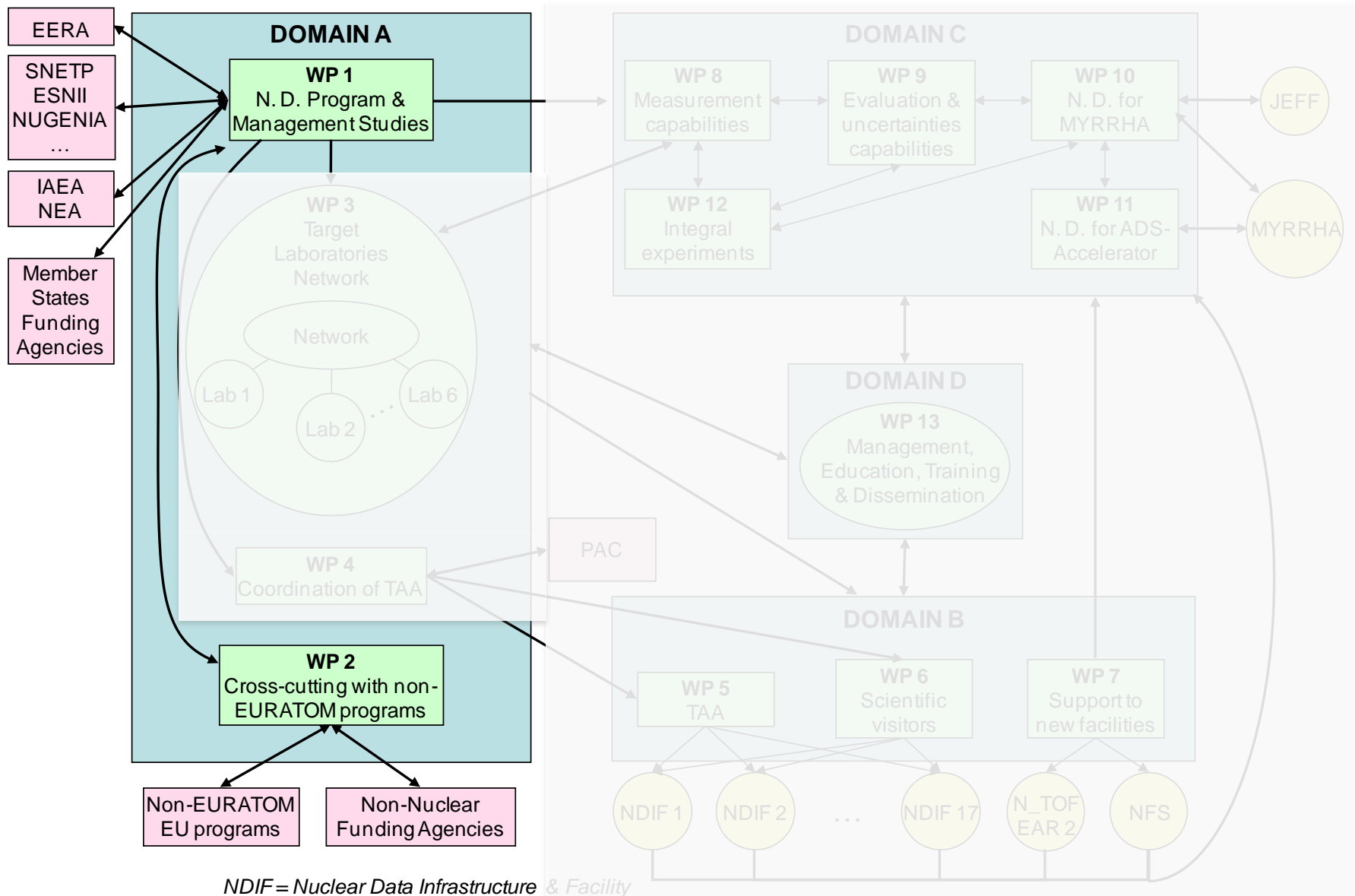
Task 2.2: Propositions for structuring of cross-cutting activities in view of Horizon 2020 (Task co-ordinator: CEA, Partners: CIEMAT, USC, IRMM, ...)

A non-exhaustive list of examples could be:

- capture cross-sections or mass measurements for [astrophysics](#);
- data useful in the [detection of fissionable radioactive or sensitive chemical](#) material by neutron or photon interrogation techniques;
- high-energy models developed for ADS that can also be employed in [medicine](#) (e.g. [hadrontherapy](#)),
- spallation neutron sources, radioprotection and [damage to electronics](#) in space or around particle accelerators and other radiation sources

Deliverables

- D.2.1: Report on the possible synergies with other domains of applications and fundamental nuclear physics. M36
- D.2.2: Report with propositions on possible future structuring; M48



WP3: Coordination of actions for the development of a network for nuclear target preparation and characterization (CNRS)

Activity 1: Coordination of efforts, resources, access and networking

Task 3.1: Inventory of existing installations dedicated to target development and manufacturing. *(Task coordinator: CNRS; Partners: All the others)*

Task 3.2: Current situation about the availability of radioactive isotopes.

Task 3.3: Preparation of long lasting international nuclear data target network.

Task 3.4: Identification of reaction targets to be prepared for Domain C and required new equipment. *(Task coordinator: JRC; Partners: All the others)*

Activity 2: Development of reaction targets related to Domain C and required new equipment

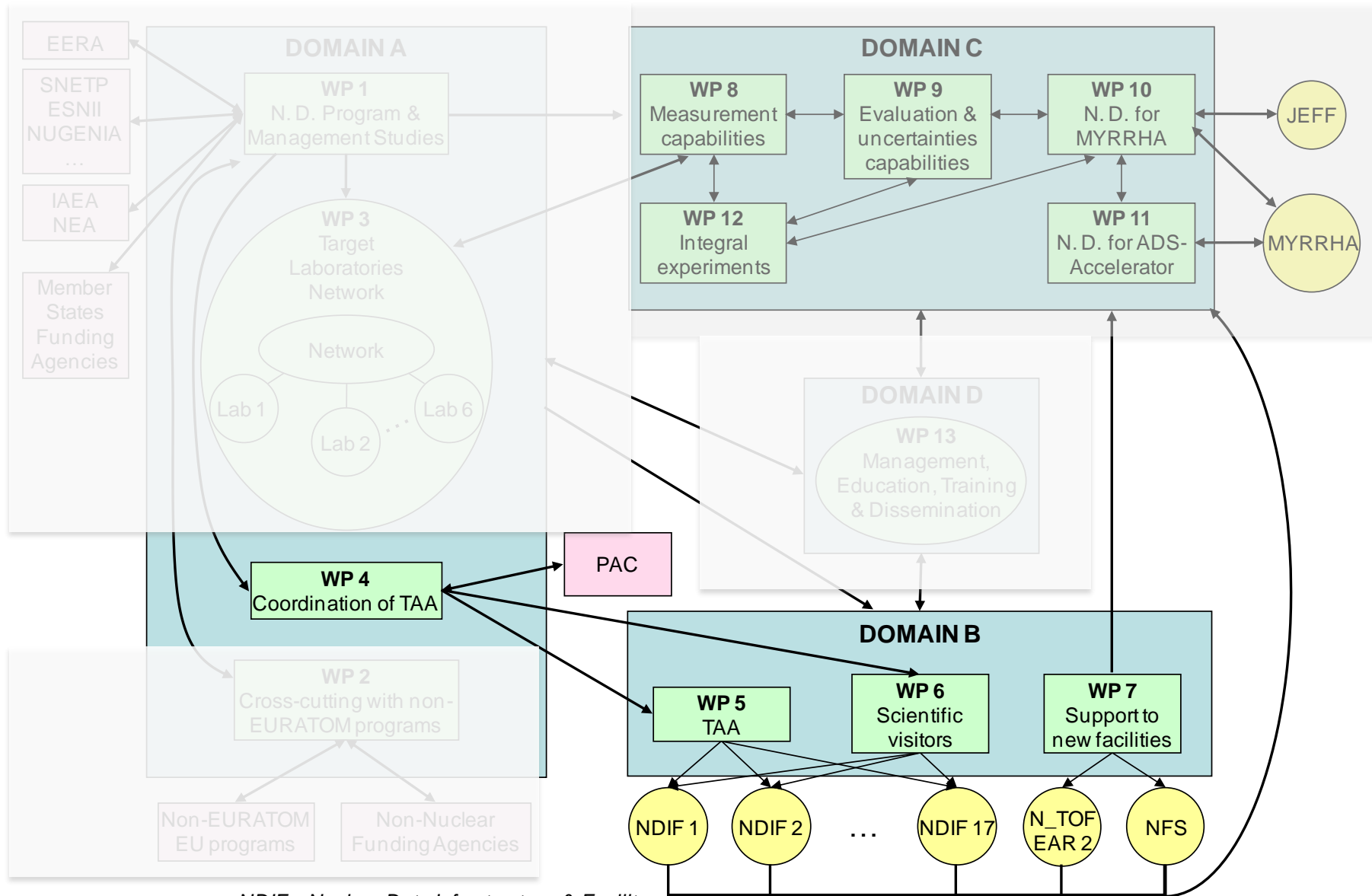
280k€ CIEMAT

Task 3.5: Development of a new equipment necessary for the fabrication / characterization of targets. *(Task coordinator: JRC; Partners: All the others)*

Task 3.6: Development of reaction targets for Domain C-WP8

Deliverables

- D.3.1 Report describing existing nuclear data target laboratories facilities and their capabilities; M12
- D.3.2 Report on existing of radioactive isotope providers, capabilities and deficiencies; M12.
- D.3.3 Proceedings of the workshop of existing installations dedicated to target development and manufacturing showing the balance between supply and needs; M18.
- D.3.4 Report on the new equipment prepared for target fabrication/characterization; M28
- D.3.5 Report on new targets fabricated; M36
- D.3.6 Report on a proposal for a long lasting international nuclear data target network; M46



NDIF = Nuclear Data Infrastructure & Facility

WP4: Calls for proposals of Transnational Access to the consortium facilities and their evaluation (HZDR)

T4.1: Preparation of project website and first Call for proposals concluded by a PAC meeting evaluating the first proposals and adopting the rules and procedures for TAA & SV

T4.2 – T4.8: Seven Calls for Proposals of Transnational Access and Scientific Visits concluded by evaluations of the proposals and progress of the Transnational Access Activities

PAC 30k€ HZDR

The facilities of the consortium are:

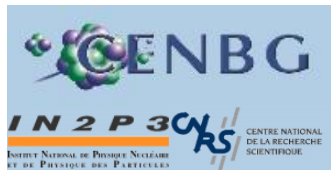
- Helmholtz-Zentrum Dresden-Rossendorf Institut für Strahlenphysik, Germany
- Institute for Reference Materials and Measurements, Belgium
- CERN, Switzerland
- Centre National de la Recherche Scientifique / Institut National de Physique Nucléaire et de Physique des Particules, Centres CENBG and IPNO, France
- The Svedberg Laboratory of the Uppsala University, Sweden
- Physikalisch-Technische Bundesanstalt, Germany
- Nuclear Physics Institute Academy of Sciences, Czech Republic
- Centre for Energy Research, Hungarian Academy of Sciences, Hungary
- Department of Physics of the University of Jyväskylä, Finland
- Horia Hulubei National Institute of Physics and Nuclear Engineering, Romania
- National Physical Laboratory, Great Britain
- Frankfurt Neutron Source at the Stern-Gerlach-Zentrum, Institut für Angewandte Physik, Goethe-Universität Frankfurt, Germany
- CEA Ile de France (Essonne), France
- VERA Laboratory at the University of Vienna, Austria
- University of Oslo Department of Physics, Norway
- Neutrons for Science at GANIL, France
- MINERVE reactor at CEA Cadarache Centre d'etudes de CADARACHE, France

Deliverables

D4.1: minutes of PAC1 meeting (month 4)

D4.2-4.7 PAC2 meeting (month 7), PAC3 meeting (month 13), PAC4 meeting (month 19), PAC5 meeting (month 25), PAC6 meeting (month 31) PAC7 meeting (month 37)

WP4: Calls for proposals of Transnational Access to the consortium facilities and their evaluation (HZDR)



The facilities of the consortium are:

1. Helmholtz-Zentrum Dresden-Rossendorf Institut für Strahlenphysik, Germany
2. Physikalisch-Technische Bundesanstalt, Germany
3. Institute for Reference Materials and Measurements, Belgium
4. Centre National de la Recherche Scientifique / Institut National de Physique Nucléaire et de Physique des Particules, Centre, CENBG and IPNO, France
5. Horia Hulubei National Institute of Physics and Nuclear Engineering, Romania
6. National Physical Laboratory, Great Britain
7. Centre for Energy Research, Hungarian Academy of Sciences, Hungary
8. The Svedberg Laboratory of the Uppsala University, Sweden
9. CERN, Switzerland
10. CEA Ile de France (Essonne), France + MINERVE reactor at CEA Cadarache Centre d'etudes de CADARACHE, France
11. Nuclear Physics Institute Academy of Sciences, Czech Republic
12. University of Oslo Department of Physics, SAFE, Norway
13. Department of Physics of the University of Jyväskylä, Finland
14. VERA Laboratory at the University of Vienna, Austria
15. Frankfurt Neutron Source at the Stern-Gerlach-Zentrum, Institut für Angewandte Physik, Goethe-Universität Frankfurt, Germany
16. Neutrons for Science at GANIL, France



WP5: Support to experiments at consortium facilities (JRC)

Objectives

The objective of this work package is to deliver at the consortium facilities a total of 4000 hours of additional data-taking hours for external users.

This corresponds to 40 'typical' experiments.

The experiments will be performed in accordance with the user proposals, as they are approved and amended by the PAC.

The work within this work package is performed by the external users, operating crews of the facilities and by their Local Contacts at the facilities

758 k€ CIEMAT

Tasks T5.1 – T5.7: experiments from the first, second, third, 4th, 5th, 6th and 7th Calls.

The facility operating crews will tune and run their facilities in accordance with experimental needs

+ 89k€ HZDR

Deliverables

D5.1 TAA User status report; M24

D5.2 TAA User status report; M48

WP6: Scientific support of experiments (JRC)

Objectives

The objective of this work package is to organize **15 scientific visits** to be performed at the participating institutes with a typical duration of **8 weeks each** .

The scientific work performed during the visits (theoretical, data analysis, computer programs,...) must be contributing to the objectives of the CHANDA project

The work within this work package is performed by the scientific visitors.

Tasks T6.1 – T6.7: scientific visits the first, second, third, 4th , 5th , 6th and 7th Calls.

At the end of his stay, the scientific visitor must submit a report describing the results of his work

96k€ HZDR

Deliverables

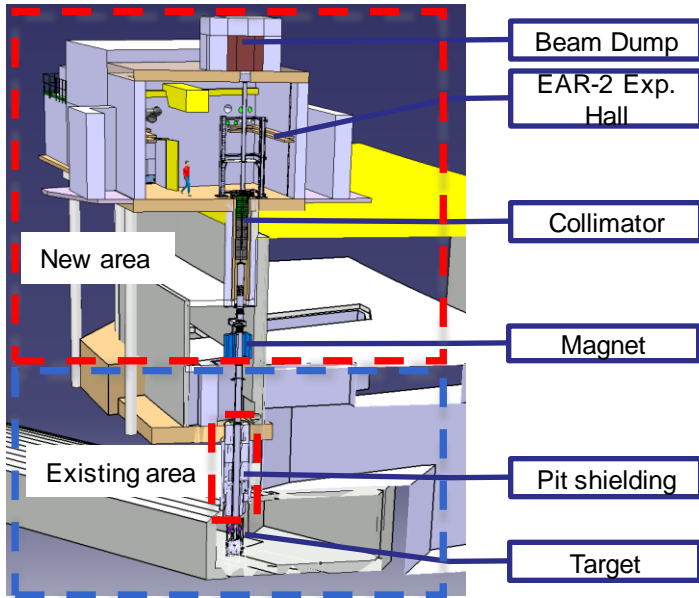
D6.1 Scientific Visitors status report; M24

D6.2 Scientific Visitors status report; M48

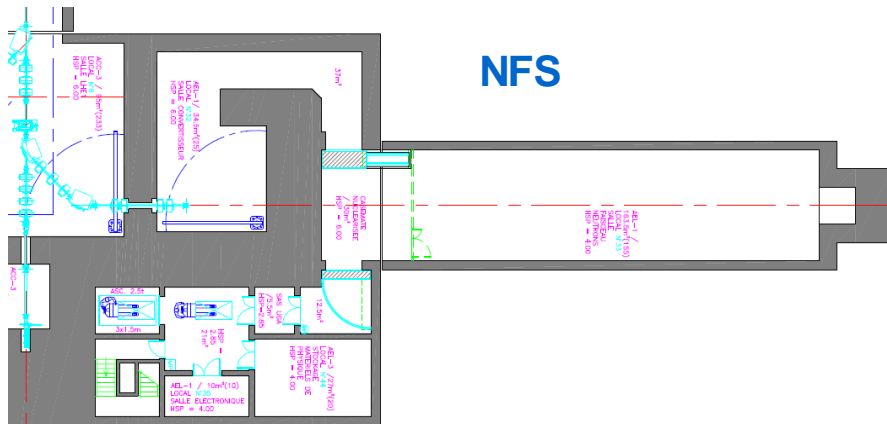
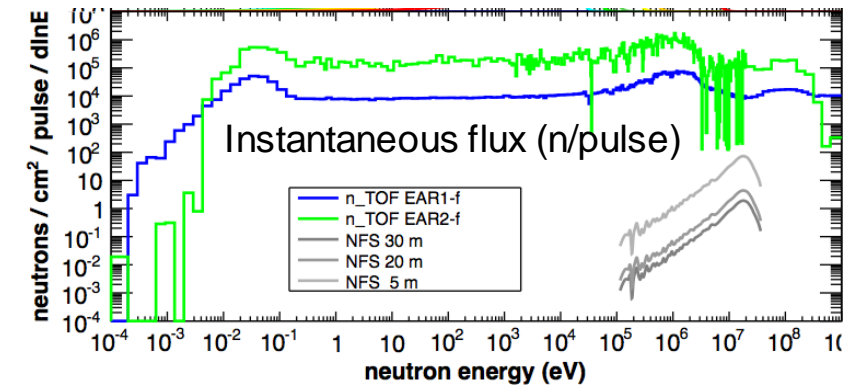
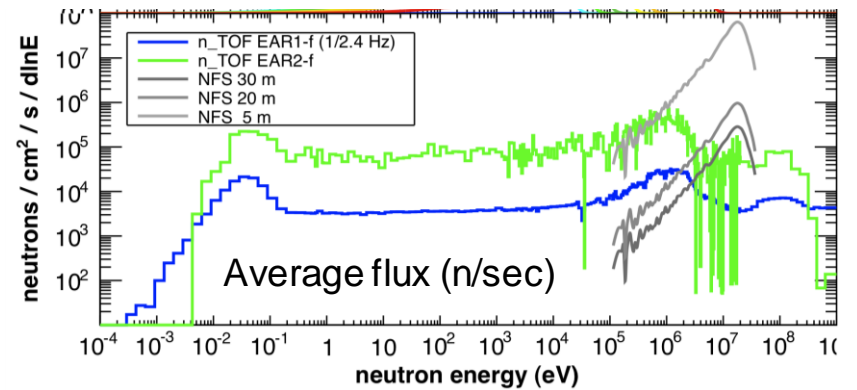
WP7: Support to Neutrons For Science and the short path n_TOF experimental area equipment (CERN)

Complementarity of n_TOF_EAR2 with NFS

The future: n_TOF_EAR2 vertical flight path at 20 m



N_TOF_EAR2 ground braking tomorrow 23/05/2013



WP7: Support to Neutrons For Science and the short path n_TOF experimental area equipment (CERN)

183k€ Material n_TOF

Task 7.1 n_TOF EAR2 Data Acquisition System (Task co-ordinator: CERN, Partners: UPC, CIEMAT).

Task 7.2: n_TOF Total Energy Detectors (Task co-ordinator: INFN, Partners: CERN)

Task 7.3: Feasibility Study of the n_TOF the high efficiency neutron capture detector (Task co-ordinator: CIEMAT, Partners: CERN, NTUA)

Task 7.4: The Transparent Neutron Beam Monitors for NFS and n_TOF EAR2 (Task co-ordinator: CEA, Partners: CERN, IST-ID)

Task 7.5: Commissioning of the NFS facility (Task co-ordinator: GANIL)

Task 7.6: Container for the transport of actinide samples.

90k€ Material NFS

Deliverables

D.7.1 Supply of the NFS container for the transport of actinide samples; M25

654k€ Total

D.7.2 Report of 16 Flash ADC channels supply and integration in the n_TOF EAR2 DAQ; M28

D.7.3 Report of the supply of the 4 Total Energy Detectors and its commissioning at n_TOF EAR2; M32

D.7.4 Report of the feasibility study of the high efficiency neutron capture detector for the n_TOF EAR2 and of the validation tests; M32

D.7.5 Report of the supply of the Neutron Beam Monitor and its commissioning at n_TOF EAR2; M32

D.7.6 Report of the NFS commissioning; M32

WP8: Development and validation of new measurement capabilities and methodologies (CIEMAT)

Task 8.1: Development of innovative techniques and instrumentation for fission cross section measurements (Task co-ordinator: INFN, Partners: CNRS, UU, *Facilities* n_TOF, NFS, AIFIRA) → Fission cross section on MA at (EAR-2) of the CERN n_TOF

Task 8.2: Determination of the capture cross sections of fissile materials and minor actinides (Task co-ordinator: CIEMAT, Partners: CNRS, U Frankfurt, U. Bucharest, *Facilities* n_TOF, OCL, FRANZ) → Capture cross sections of fissile or difficult materials

Task 8.3: Development of new setups and methods for measuring elastic, inelastic and (n,xn) cross sections (Task co-ordinator: CNRS, Partners: CEA-BRC, CEA-CAD, HZDR, IFIN, JRC, JYU, NTUA, U. Bucharest, *Facilities*: n_TOF(EAR-2), GELINA, nELBE, NFS) → Feasibility test with neutron inelastic scattering of ^{238}U

Task 8.4: Improvement of experimental techniques and methodologies for decay data. (Task co-ordinator: CSIC, Partners: CIEMAT, CNRS, JYU, UPC, *Facility* JYFL)

Task 8.5: Advanced methodologies and experimental techniques for measurement of fission yields (Task co-ordinator: CEA-Saclay, Partners: CEA-BRC, GANIL, CNRS, JYU, UU, U. Manchester, *Facilities* NFS, JYFL, ALTO, Lohengrin, SOFIA, VAMOS)

WP8: Development and validation of new measurement capabilities and methodologies (CIEMAT)

Deliverables

- D.8.1 Comprehensive progress report on the setup and method developments of WP8; M24
- D.8.2 Report on the measurement with the Total Absorption Calorimeter and fission micromegas detector of the neutron induced fission cross section of ^{235}U at n_TOF; M36
- D.8.3 Report on the new fission setups at EAR2/n_TOF, NFS and AIFIRA; M48
- D.8.4 Report on the new setups for neutron scattering and (n,xn) measurements; M48
- D.8.5 Report on the performance of the setups for measuring the β -delayed γ -rays with a Total Absorption Gamma Ray Spectrometer (TAGS) and for measuring the β -delayed neutrons with the 4π neutron long counter (BELEN); M48
- D.8.6 Report on the new setups for measuring fission yields; M48

WP9: Development and validation of new nuclear data evaluation and application capabilities (NRG)

Task 9.1 Verification and validation of EXFOR (*Task co-ordinator: NRG, Partners: IAEA, NEA*).

Task 9.2: Maintenance and extension of TALYS capabilities (*Task co-ordinator: NRG, Partners: CEA-DAM, TUW, UU, UB*).

Task 9.3: Uncertainty methods (*Task co-ordinator: TUW, Partners: CEA-DAM, NRG, CEA-DEN*).

Task 9.4: Processing of nuclear data (*Task co-ordinator: CCFE, Partners: IJS, UPM*).

Task 9.5: Uncertainties in fuel cycle data (*Task co-ordinator: NNL, Partners: CCFE, CIEMAT, UPM, CNRS*)

Deliverables

- D.9.1 Report on the procedure for the inclusion of angular distributions into the covariance scheme; M24
- D.9.2 Report on sensitivity/uncertainty analysis for an up-to-date reactor design; M36
- D.9.3 Open source software package TALYS-2.0, fully applicable to all nuclear systems of interest, with all improved theoretical ingredients implemented; M48
- D.9.4 Report on the CONRAD methodology and comparison with traditional Bayesian methods; M48
- D.9.5 Report on the extended procedure for experimental and theoretical uncertainty handling; M48

WP10: Development of nuclear data for Myrrha reactor safety analyses (JRC)

Task 10.1 Sensitivity analysis (Task co-ordinator: *UPM*, Partners: CIEMAT, JSI, SCK•CEN)

Task 10.2: Comparison of evaluated data libraries (Task co-ordinator: *UPM*, Partners: SCK•CEN).

Task 10.3: Identification of existing experimental cross section data (Task co-ordinator: *UPM*, Partners: JRC, JSI).

Task 10.4: Identification of data for validation and execution of new validation experiments (Task co-ordinator: *JRC*, Partners: JSI)

Task 10.5: Improvement and validation of data libraries (Task co-ordinator: *JSI*, Partners: JRC, SCK•CEN, UPM)

Task 10.6: Recommendations to the JEFF project (Task co-ordinator: *JRC*, Partners: JSI, SCK•CEN, UPM)

Deliverables

- D.10.1 Report on sensitivity analysis of MYRRHA with list of key reactions; M12
- D.10.2 Report on comparison of evaluated libraries and identification of existing experimental data; M18
- D.10.3 Report on improvements made to existing evaluations; M24
- D.10.4 Report on the validation of improved data libraries; M30
- D.10.5 Report with recommendations for the JEFF project; M36

WP11: Development of a methodology for uncertainty assessment and minimization in ADS target and accelerator safety analyses (CEA)

Task 11.1 Identification of critical parameters for the safety of MYRRHA and simulations with different codes (Task co-ordinator: *SCK•CEN*, Partners: *CEA, HZDR, PSI*)

Task 11.2: Analyses of samples irradiated at PSI for code validation (Task co-ordinator: *PSI*, Partners: *CEA, HZDR*)

Task 11.3: Minimization of the uncertainties due to the physics models (Task co-ordinator: *CEA*, Partners: *USC, HZDR*)

Task 11.4: Development of advanced experimental techniques providing more complete and accurate data on spallation reactions (Task co-ordinator: *USC*, Partners: *CEA, HZDR*)

Task 11.5: Study of a methodology to quantify uncertainties linked to high-energy models (Task co-ordinator: *CEA*, Partners: *SCK•CEN, HZDR, NRG*)

Deliverables

- D.11.1 Report on critical parameters; M12
- D.11.2 Report on uncertainties of critical parameters; M48
- D.11.3 Report on experimental data from PSI sample analysis; M48
- D.11.4 Models implemented into transport codes and report on their improved capabilities; M48

WP12: Development and validation of new integral experiments (CEA)

Task 12.1: Measurement/Interpretation of a set of new oscillations experiment in MINERVE (Task co-ordinator: CEA, Partners: NRG, CIEMAT)

Task 12.2: Uncertainty propagation (Task co-ordinator: NRG, Partners: CEA, CIEMAT, INFN)

Task 12.3: Integral Experiment data assimilation (Task co-ordinator: CEA, Partners: NRG, ENEA)

Task 12.4: New infrastructure for studies of transmutation and fast systems concepts (Task co-ordinator: INFN, Partners: ANSALDO) (MYRRHA & ALFRED)

Deliverables

- D.12.1 Analysis of new microscopic and integral (MINERVE) measurements for a set of isotopes; M48
- D.12.2 Report on benchmarking results of propagation methods on a set of integral experiments; M48
- D.12.3 Report on dedicated results of data assimilation of Integral Measurements ; M48
- D.12.4 Report on feasibility, with optimization of the new infrastructure requirements and description of specific capacities for experiments; M48

WP13: Management, education and training (CIEMAT)

Task 13.1: Management of the project (Task co-ordinator: *CIEMAT*, Partners: *CEA, JRC*).

Reporting, Web, Cooperation with the parallel Russian projects

Task 13.2: Coordination of the education and training (Task co-ordinator: *UU*,
Partners: *UMan, JRC*)

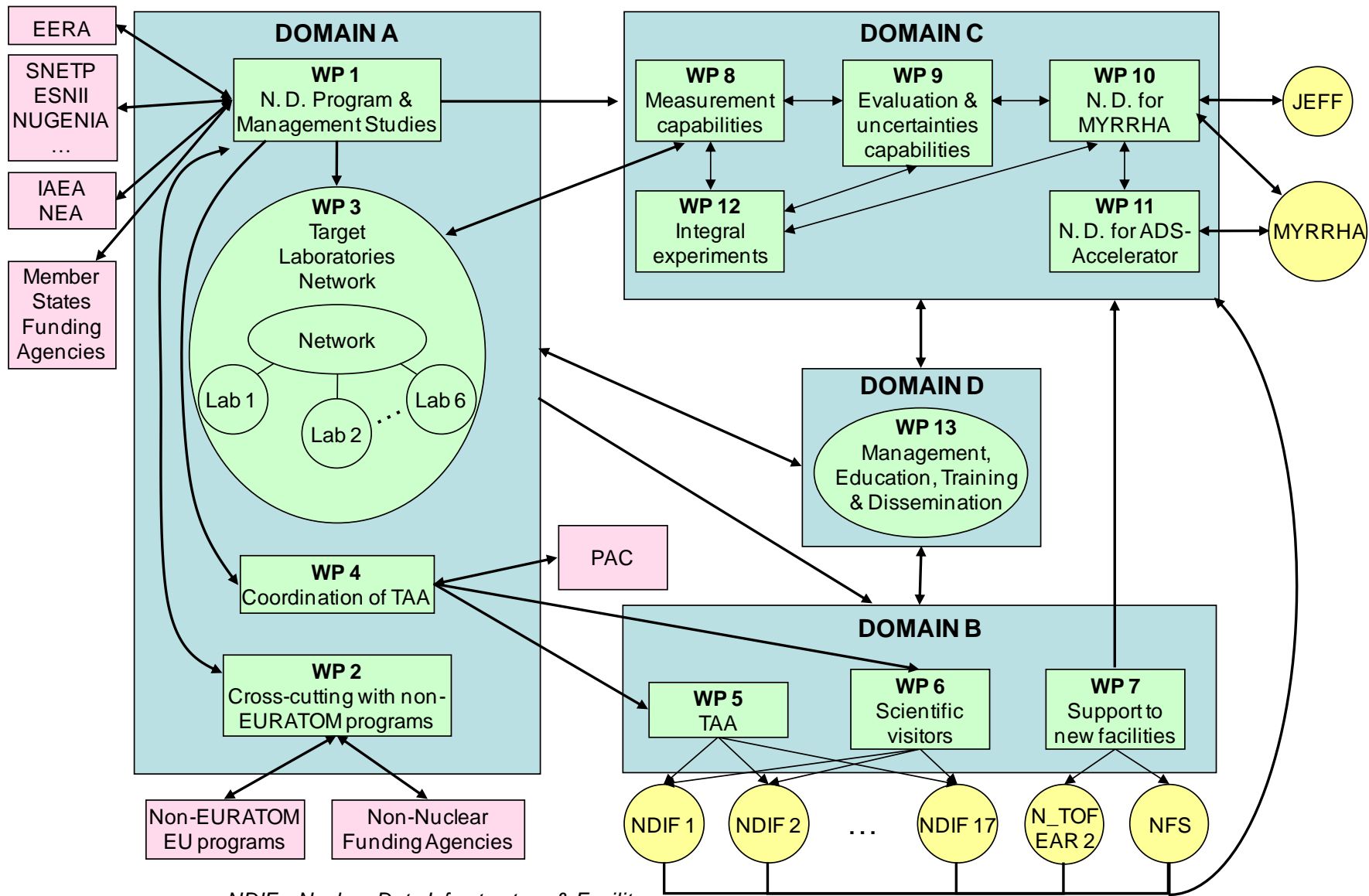
9kEuros JRC and 22 kEuros by UU

Initial contacts had been made with the organizers of the series of EXTEND and of the Nuclear Resonance Analysis schools , ENEN

Task 13.3: Coordination of dissemination (Task co-ordinator: *JRC*, Partners: *CIEMAT, NRG*)
JEFF, NEA, IAEA

Deliverables

- D.13.1: First Nuclear Resonance Analysis school; M3
- D.13.2: CHANDA web; M3
- D.13.3: Second Nuclear Resonance Analysis school; M24
- D.13.4: One open training course on nuclear data for science and technological applications; M30
- D.13.5: Report on dissemination activities; M47
- D.13.6: Final report of the project; M48
- D.13.8: 1st periodic reporting: M18; D.13.9: 2nd periodic reporting: M36
- D.13.10: Final Periodic Reporting: M48
- D.13.11: Project presentation: M3
- D.13.12: Project “Communication Action Plan”: M3



NDIF = Nuclear Data Infrastructure & Facility

CHANDA

Improving all elements involved in nuclear data to overcome standing challenges.

