

# ARIEL WP5

## Schools and Dissemination

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H2020 ARIEL MB meeting

ZOOM, May 19<sup>th</sup> 2021

# WP5 Schools and Dissemination

<b>Work package number</b>	5	<b>Lead beneficiary</b>									USE
<b>Work package title</b>	Schools and dissemination										
<b>Participant number</b>	16	19	18	14	7	4	5	1	15	2	21
<b>Short name of participant</b>	USE	JGU	UU	NPL	CEA	CIEMAT	CNRS	HZDR	JSI	JRC	ENEN
<b>Person months per participant:</b>	3	2	4	0.5	1	5	0.5	2	1.4	1	3
<b>Start month</b>	1				<b>End month</b>				48		

## Objectives

The work package has two goals: Organisation of four summer schools to attract physics and engineering students to the applied nuclear research field and the fast dissemination of results through scientific workshops and progress meetings with the scientists participating in the project. One school or training course per year for education and competence building will be organized. The schools cover theoretical lectures and practical hands-on laboratory exercises on all aspects in the nuclear data path from experiment to the end-use in applications. They will be organized by consortium laboratories (USE, JGU, UU, CIEMAT, JSI) with an excellent educational background in providing courses to early stage researchers. The course duration is one to two weeks. The target groups for the schools and courses are generally European young scientists or engineers. A cooperation with ENEN will allow advertising these courses to a wider research community. The rapid and extensive dissemination of the knowledge generated within this project will be reached through several tasks in this work package. The kickoff meeting will be organized by HZDR, the first progress meeting and scientific workshop by JRC Geel, the second one by NPL, the final scientific workshop by IPN Orsay

# WP5 Schools (after meeting on 20/4/21)

## 1/2022 @CIEMAT, Madrid, Spain

Nuclear data: the path from the detector to the reactor calculation,  
(20 participants) (33.4 kEUR)

**News: online, students change parameter files (no codes) & see plots**

**Budget: the online event has a strongly reduced cost, decision to be made.**

## 9/2022 @CNA, Seville (Spain)

Hands-on school on the production, detection and use of neutron beams  
(18-24 participants) (34.8 kEUR)

**News: 3 days online for intro&theory + 5 days in lab**

## 10/2023 @JGU, Mainz, Germany

Lab course in Reactor Operation and Nuclear Chemistry  
(10 participants) (14.5 kEUR)

**No news**

## 6/2023 @University of Uppsala (Sweden)

EXTEND'2023 summer school  
(25 participants) (57.5 kEUR)

**NESSA start-date uncertain. Proposed back-up: simplified lab sessions**

# International school

## Nuclear data: the path from the detector to the reactor calculation



by Daniel Cano-Ott @ARIEL-Schools meeting, on April 20<sup>th</sup> 2021

## General info

**Goal of the school:** to provide to the PhD students (and researchers) a global overview of the nuclear data cycle, from the experiments for measuring the nuclear data to the final use in applications.

**Duration:** 2 weeks / 3 or 4 hours a day (Monday – Friday)

**Method:** on-line. Seminars (1 or 2 hr duration) and hands-on lectures with computer exercises (2 or 3 hr duration). Development of specific software and interaction via PHP / web.

**When:** earliest date, the 2<sup>nd</sup> half of November 2021 (very tight) / January – February 2022? (preferable)

**Number of participants:** 20 (perhaps some more?) students + lecturers.

### Local team

Scientific committee: Daniel Cano, Francisco Álvarez, Vicente Bécares, Enrique González, Emilio Mendoza, Aris Villacorta

Education & Training: Marisa Marco, Susana Falcón

# **Nuclear data: the path from detectors to reactor calculations**

**Coordinated by CIEMAT (D. Cano-Ott)**

## **Nuclear data for nuclear technologies and applications**

**Coordinators: D. Cano, E. González**

## **Identification of nuclear data priorities**

**Coordinators: F. Álvarez, V. Bécares, A. Villacorta**

## **Nuclear data measurements**

**Coordinators: E. Mendoza, D. Cano**

## **Nuclear data evaluation**

**Coordinators: Luiz Leal, Gilles Noguere**

## **Verification and validation**

**Coordinators: O. Cabellos, F. Álvarez**

Type	Duration [h:m]	Title	Topic	Lecturers	
		<b>Nuclear data for nuclear technologies and applications</b>			
Seminar	1:00	What are nuclear data	Introduction	D. Cano	
Seminar	1:00	Nuclear data for nuclear technologies and applications	Introduction	E. González	
Seminar	1:00	The JEFF project	Introduction	A. Plompen?	
		<b>Identification of nuclear data priorities</b>			
Seminar	2:00	Nuclear data, reactor physics (thermal and fast) and sensitivity analysis	Nuclear data priorities	F. Álvarez	V. Bécares
Hands-on lecture	2:00	Introduction to sensitivity analyses	Nuclear data priorities	V. Bécares	A. Villacorta
Hands-on lecture	2:00	Sensitivity analyses of real thermal and fast reactors	Nuclear data priorities	F. Álvarez	A. Villacorta
Seminar	1:00	Nuclear data priorities for non-energy applications	Nuclear data priorities	R. Capote?	
		<b>Nuclear data measurements</b>			
Seminar	1:00	Facilities and experimental techniques: reactions (neutron beams, reactors)	Nuclear data measurements	A. Junghans? C. Domingo? C. Guerrero?	
Seminar	1:00	Facilities and experimental techniques: decay data (accelerators)	Nuclear data measurements	B. Rubio? J.L. Taín? H. Pentillä?	
Seminar	1:00	Samples for nuclear data experiments	Nuclear data measurements	D. Schumann? G. Siebbers?	
Seminar	1:00	Detectors and experimental techniques	Nuclear data measurements	C. Domingo? C. Guerrero?	
Hands-on lecture	1:00	Capture experiments	Nuclear data measurements	D. Cano	E. Mendoza
Hands-on lecture	1:00	Fission experiments	Nuclear data measurements	E. Mendoza	D. Cano
Hands-on lecture	1:00	Transmission experiments	Nuclear data measurements	P. Schillebeeckx?	E. Mendoza
Seminar	1:00	Identification and propagation of uncertainties	Nuclear data measurements	P. Schillebeeckx?	
Hands-on lecture	2:00	Data reduction and analysis	Nuclear data measurements	E. Mendoza	
Seminar	1:00	Dissemination of nuclear data	Nuclear data measurements	R. Capote? E. Dupont?	

		<b>Evaluation</b>			
Seminar	2:00	Nuclear data evaluation	Evaluation	Luiz Leal? G. Noguerra?	
Seminar	1:00	Automatic evaluation procedures	Evaluation	A. Koning? D. Rochman?	
		<b>Verification and validation</b>			
Seminar	1:00	Data processing tools, simulation codes (Monte Carlo and deterministic) and reference databases of integral experiments	Verification and validation	O. Cabellos	
Hands-on lecture	2:00	Nuclear data visualisation and processing tools	Verification and validation	Pablo Romojaró? NEA?	
Seminar	1:00	Validation of nuclear data libraries	Verification and validation	Arjan Plompen? D. Rochman? C. de St Jean? Andrej Trkov?	
Hands-on lecture	2:00	Validation with integral experiments	Verification and validation	V. Bécares	F. Álvarez
<b>Total (dd:hh:mm)</b>	<b>30:00</b>				