Status and news from ARIEL

Arnd Junghans,
Helmholtz-Zentrum Dresden-Rossendorf

This project has received funding from the Euratom research and training programme 2014-2018 under grant agreement No 847594 (ARIEL).

www.ariel-h2020.eu

Accelerator and Research Reactor Infrastructures for Education and Learning: ARIEL

Accelerator and Research Reactor Infrastructures for Education and Learning (ARIEL)

- EURATOM Workprogramme 2018
  Education and Training:
  NFRP-2018-7 Availability and use of research infrastructures for education, training and competence building

- EC contribution: 2 Mio. EUR
  Coordination and Support Action

- Project duration: 48 months starting September 1, 2019

ARIEL main activities

- Transnational Access to Neutron facilities
  30 typical experiments, 3000 beam time hours
  4 users per experiment supported for 7 days
- Training of early stage researchers and scientific visits
  30 research stays of up to 12 weeks
- Summer schools to reach out to students
  4 summer schools organized by University of Seville, Johannes Gutenberg University, CIEMAT and Uppsala University
- Scientific progress meetings:
  Dissemination of results - nuclear data networking:
  kick-off meeting + three scientific meetings
  JRC (October 2021), NPL (October 2022, IPN Orsay (November 2023)

- Joint scientific meetings with SANDA and JEFF

Transnational Access to Neutron Facilities

- Support for 3000 hours of additional beam time hours, 30 typical experiments
- Increased mobility support for external user groups (4 persons, 7 days). Early stage researchers (less than 6 years since PhD) preferably supported.
- TAA Pooling scheme successful (see CHANDA, ARIEL, ...)
- Selection of Experiments by the Project Advisory Committee based on scientific excellence and relevance to the ARIEL objectives
- Synergies with EURATOM SANDA project and other calls from WP2018, e.g. target production activities
- Seven calls for proposals starting with November 2019

Training of early stage reseachers and scientific visits

- Up to 30 research stays for up to 12 weeks:
  Early stage researchers + short term visitors
- Full spectrum of experimental capacities of the consortium resulting in a high potential of competence building.
- Support student graduate education +
  training of engineers and technicians +
  sharing knowledge between experienced researchers.
- Participation of IAEA, JEFF(NEA), GRS and IRSN essential
- Selection by the Project Advisory Committee based on scientific excellence and relevance to the ARIEL objectives in collaboration with ENEN

Summer schools

- Nuclear data: the path from the detector to the reactor calculation, CIEMAT, Madrid (September 2021)
- EXTEND'2022 summer school at Uppsala University (June 2022)
- Hands-on school on the production, detection and use of neutron beams, University of Seville (March 2023)
- Lab course in Reactor Operation and Nuclear Chemistry, University of Mainz (October 2023)

- Dissemination and advertisement through ENEN

ARIEL criteria for selection of experiments

- Project Advisory Committee to select experiments based on scientific excellence and value to education and training
  - Focus on nuclear safety and on support to modelling and evaluation (e.g. ASTRID, MYRRHA, molten salt reactors, spent fuel concepts and decommissioning)
  - Research experience for early-stage researchers: advanced techniques for radiation measurements, testing and development of novel detector concepts. Exchange of knowledge and methodologies for senior scientist and technical staff.
  - Coordination with EURATOM projects related to nuclear data (SANDA: High precision nuclear data for the major actinides present in advanced reactor fuels)
  - Coordination with OECD/NEA (High Priority Request list, JEFF, NEST), IAEA International Nuclear Data Evaluation Network (INDEN) and European Technological Platforms.

Project Advisory Committee

- Daniel Cano-Ott, CIEMAT
- Roberto Capote, IAEA
- Robert Jacqmin, CEA
- Maëlle Kerveno, CNRS
- Gert van den Eynde, SCK*CEN

Management Board

Project Coordinator: Arnd Junghans, HZDR

Scientific Coordinator: Arjan Plompen, JRC

Transnational Access Coordinator: Ralf Nolte, PTB

Communication Manager: Carlos Guerrero, USE

Training Coordinator: Heikki Penttilä, JYU

Management Team

Dr. Carola Franzen, Dr. Roland Beyer, Katja Gröger, HZDR

1st Amendment submitted

- Extension: 54 months starting September 1, 2019
- Two new partners:
  IRSN, Amande facility Cadarache
  AGOR cyclotron laboratory, Univ. Med. Center Groningen
- Travel budget reallocation to all partners
- CNRS „access to neutron beam facilties“ budget converted to PM for beam line scientist (cost neutral)
- Reporting periods 18-18-18 months

Status of ARIEL scientific activities

- May 2020:
  Most ARIEL facilities in minimal operation without external users
- New facility status inquiry ongoing.
- E & T activities: 6 + 8 visits have been approved
  only 2 have been completed (PTB, HZDR)
- TAA access to neutron beam facilties
  5 + 3 experiments have been approved, none completed

- October 2020 call for proposals has been canceled due to COVID restrictions and backlog of activities
- Next call for proposals in April 2021 / November 2021 …
- NFS operational / n_TOF commissioning in 2021

Mitigation of ARIEL travel restrictions

- Support of ***local*** Education and Training activities, if travel restriction prohibit external visits
- Relevance for the ARIEL goals and ongoing research projects e.g. SANDA
- Proposal evaluation by the ARIEL PAC
- Support of up to 5 E & T visits

Summary

ARIEL amendment submitted
(new partners IRSN, UMCG)
6 month extension of project
Travel budgets reallocated to partners
Mitigation measure: local E & T activities

Next Call for Proposals : April 15, 2021