



HAL
open science

Editorial: Fuel Cycle Simulation TWoFCS 2021

Fanny Courtin, Léa Tillard, Francisco Álvarez-Velarde, Philippe Moisy

► **To cite this version:**

Fanny Courtin, Léa Tillard, Francisco Álvarez-Velarde, Philippe Moisy. Editorial: Fuel Cycle Simulation TWoFCS 2021. EPJ N - Nuclear Sciences & Technologies, 2022, 8, pp.E1. 10.1051/epjn/2022009 . cea-03758434

HAL Id: cea-03758434

<https://hal-cea.archives-ouvertes.fr/cea-03758434>

Submitted on 28 Oct 2022

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

Fuel Cycle Simulation TWoFCS 2021, Fanny Courtin, Francisco Alvarez-Velarde, Philippe Moisy and Léa Tillard (Guest editors)

EDITORIAL

OPEN ACCESS

Editorial: Fuel Cycle Simulation TWoFCS 2021

Fanny Courtin^{1,*}, Léa Tillard², Francisco Álvarez-Velarde³, and Philippe Moisy⁴

¹ CEA/DES/IRENE/DER/SPRC/LE2C, CEA Cadarache, 13115 Saint Paul-lez-Durance, France

² ORANO, 92320 Châtillon, France

³ CIEMAT, Avda. Complutense, 40, Madrid 28040, Spain

⁴ CEA/DES/ISEC/DMRC, CEA Marcoule, 30200 Chusclan, France

Received: 20 May 2022 / Accepted: 30 May 2022

Nuclear scenario studies are performed to explore the impact of possible evolutions of nuclear fleets. While these studies help to understand fuel cycle physics and to highlight drivers for nuclear inventories, they are also used as boundary objects for building interdisciplinary researches in connection with sociology, economics, etc. Nuclear scenario studies rely on nuclear fuel cycle simulation tools developed to enhance the scientific knowledge related to nuclear fuel cycle physics. These codes are based on physical models simulating each type of reactor and fuel. Usually, each research or engineering institution develops its own code matching specific issues (resource management, plutonium multi-recycling, GEN IV reactors deployment, minor actinides transmutation, market management....) related to a national or local situation. Hence, a wide variety of nuclear fuel cycle simulation tools and possible/reachable outputs are

available. However, the scientific issues (optimization algorithm, uncertainty propagation, exploratory analysis, physical models, coupling with economy...) encountered by the community are similar.

Since 2015, an international effort has been made by nuclear fuel cycle simulation tools developers and users to connect with stakeholders and facilitate the development of collaborations and projects at national and international levels. In this framework, Technical Workshops on Nuclear Fuel Cycle Simulation (TWoFCS) are organized in order to enhance discussions and provide the opportunity for scientists to share their work. This year edition has been supplemented by this topical issue of EPJ-N gathering research papers on nuclear scenarios studies. We are thankful to the publisher and editors for this opportunity to give an overview of recent research works achieved by the international community.

* e-mail: fanny.courtin@cea.fr