



Workshop on the Challenges in Managing Spent Evolutionary Advanced Technology Fuels

**IAEA Headquarters, Vienna, Austria
and virtual participation via Cisco Webex**

19 – 23 October 2026

Ref. No.: EVT 2205116

Information Sheet

Introduction

Many Member States are interested in Advanced Technology Fuels (ATFs) for future deployment in Water-Cooled Reactors (WCRs). ATF advances include new cladding coatings and materials, doped UO_2 , increased enrichment beyond 5%, and high density fuels. ATFs can be broadly divided into three categories, currently deployed ATFs, evolutionary ATFs (e-ATFs) for near-term deployment, and revolutionary ATFs (r-ATFs) for long-term deployment.

The differing characteristics of ATFs, whether used for existing large WCRs or Water-Cooled Small Modular Reactors (WC-SMRs), might pose new challenges to spent fuel management in all stages of the back end of the fuel cycle (storage, transportation, reprocessing & recycling, and disposal). Lessons learned from the management of currently deployed ATFs may provide insight to assess the impact of managing future e-ATFs and r-ATFs.

e-ATFs build on the existing WCR fuels and are being proposed for use in existing large WCRs and some WC-SMR designs in the near term, as they can offer improved safety margins, better economics, and/or enhanced fuel performance. Examples of e-ATFs are UO_2 pellets with chromium-coated zirconium cladding, advanced cladding alloys, and doped UO_2 fuels to improve thermal conductivity and fission gas retention.

r-ATFs represent new paradigms in fuel designs to be deployed in WCRs in the long term. Examples of r-ATFs are TRISO particle fuels, metallic fuels (e.g., (U-Zr) and (U-Pu-Zr) alloys), uranium silicide (U_3Si_2) fuels, and ceramic composite fuels (e.g., UN and UC fuels).

At the 24th Meeting of the IAEA Technical Working Group on Nuclear Fuel Cycle Options and Spent Fuel Management (March 2026), members recommended the IAEA to organize a workshop to bring together stakeholders to share knowledge and experience on the challenges to managing ATFs. In response, the IAEA will organize a Workshop on the Challenges in Managing Spent Evolutionary Advanced Technology Fuels from 19 to 23 October 2026 at its Headquarters in Vienna.

The Workshop will focus primarily on e-ATFs, but r-ATFs to be deployed in WCRs and WC-SMRs will also be considered, as many Member States are interested in the development of SMRs. The 2024 edition of the IAEA booklet entitled “Small Modular Reactors Catalogue 2024” lists 15 land-based WC-SMRs and 6 sea-based WC-SMRs. While many WC-SMRs are being developed with conventional WCR fuel, adapted geometries are required and may impact the management of the spent fuel. These geometry changes are considered to be part of the Workshop scope. For simplicity, e-ATF, r-ATF, and WC-SMR fuels will be referred to in this Information Sheet as simply ATFs.

Objectives

The purpose of the event is to bring together key stakeholders to share knowledge and information, discuss the implications of managing spent ATFs (including technical challenges and beneficial characteristics for their management), and to develop roadmaps for their management via breakout sessions.

Target Audience

The workshop is open to operators, vendors, manufacturers, service providers, regulators, utilities, academics, technical support organizations, research institutions and laboratories, national authorities, international organizations and industry partners from all IAEA Member States involved in spent fuel management.

Working Language(s)

The working language of the meeting will be English, with no interpretation provided. All communications, presentations, and abstracts must be in this language.

Topics

The event will include presentations from participants on their experiences and research on the management of spent ATFs.

1. ATFs characterization including

- Pool-side inspection results
- Post-irradiation examination (PIE) data
- Empirical measurement data
- Characterization modelling data and validation
- Data gaps and data needs

2. Characteristics and implications to managing ATFs during all stages of the back end of the nuclear fuel cycle

- Storage (wet and dry)
- Recycling, including High Level Waste (HLW) generated during the process
- Transportation
- Disposal, including encapsulation and repackaging steps

3. ATFs deployment timelines

- Planned implementation timelines for new fuel designs and when their associated spent fuel management systems will be needed
- Impacts and knock-on effects of fuel design changes on the back end of the nuclear fuel cycle

All future ATFs are within the scope of the Workshop. However, priority will be given to e-ATFs and WC-SMR fuels ready in the near term over r-ATFs available in the longer term. Examples of ATFs characteristics may include any one or more of the below:

- Higher enrichment fuel (>5% U-235), especially that which also achieves high burnup (>62 GWd/tU)
- Different geometries (e.g., SMR-specific geometry such as short assemblies, annular fuel rods)
- New claddings and cladding coatings, such as
 - Advanced Zirconium-based alloys
 - Coated Zirconium-based alloy cladding (e.g., Cr)
 - FeCrAl alloy or other Iron-based alloy cladding
 - SiC-SiC cladding
 - Mo cladding (e.g., Mo-Zr, Mo-La, Mo liners)

- New fuel types, such as
 - Doped UO₂ (e.g., Cr, Al, Mo, Be)
 - Microcell UO₂
 - Fuel with high concentrations of neutron absorbers (e.g., Gd)
 - High density fuel (e.g., U₃Si₂, UN, UC, UB₂, U-Zr)
 - Cermet

Participation and Registration

All persons wishing to participate in the event have to be designated by an IAEA Member State or should be members of organizations that have been invited to attend.

In order to be designated by an IAEA Member State or invited organization, participants are requested to submit their application via the InTouch+ platform (<https://intouchplus.iaea.org>) to the competent national authority (Ministry of Foreign Affairs, Permanent Mission to the IAEA or National Atomic Energy Authority) or organization for onward transmission to the IAEA by **25 September 2026**, following the registration procedure in InTouch+:

1. Access the InTouch+ platform (<https://intouchplus.iaea.org>):
 - Persons with an existing NUCLEUS account can sign in to the platform with their username and password;
 - Persons without an existing NUCLEUS account can register [here](#).
2. Once signed in, prospective participants can use the InTouch+ platform to:
 - Complete or update their personal details under ‘Complete Profile’ and upload the relevant supporting documents;
 - Search for the relevant event under the ‘My Eligible Events’ tab;
 - Select the Member State or invited organization they want to represent from the drop-down menu entitled ‘Designating Authority’ (if an invited organization is not listed, please contact InTouchPlus.Contact-Point@iaea.org);
 - If applicable, indicate whether an abstract is being submitted and complete the relevant information;
 - If applicable, indicate whether financial support is requested and complete the relevant information (this is not applicable to participants from invited organizations);
 - Based on the data input, the InTouch+ platform will automatically generate the Participation Form (Form A), the Form for Submission of a Paper (Form B), and/or the Grant Application Form (Form C);
 - Submit their application.

Once submitted through the InTouch+ platform, the application, together with the auto-generated form(s), will be transmitted automatically to the required authority for approval. If approved, the application, together with the applicable form(s), will automatically be sent to the IAEA through the online platform.

NOTE: The application for financial support should be made, together with the submission of the application, by **25 September 2026**.

For additional information on how to apply for an event, please refer to the [InTouch+ Help](#) page. Any other issues or queries related to InTouch+ can be sent to InTouchPlus.Contact-Point@iaea.org.

Selected participants will be informed in due course on the procedures to be followed with regard to administrative and financial matters.

Participants are hereby informed that the personal data they submit will be processed in line with the [Agency's Personal Data and Privacy Policy](#) and is collected solely for the purpose(s) of reviewing and assessing the application and to complete logistical arrangements where required. The IAEA may also use the contact details of Applicants to inform them of the IAEA's scientific and technical publications, or the latest employment opportunities and current open vacancies at the IAEA. These secondary purposes are consistent with the IAEA's mandate. Further information can be found in the [Data Processing Notice](#) concerning IAEA InTouch+ platform.

Abstracts and Presentations

The IAEA encourages participants to deliver presentations on the work of their respective institutions that falls under the topics listed above.

Participants who wish to deliver presentations are requested to submit an abstract of their work. The abstract will be reviewed as part of the selection process for presentations. The abstract should be in A4 page format, should be **no more than 2 pages** (including figures and references) and should be in the IAEA template available in the INDICO platform.

For the selection process, abstracts must be submitted through the [INDICO platform](#) not later than **25 September 2026**. Authors will be notified of the acceptance of their proposed work by **30 September 2026**.

Please note if an abstract is submitted through the INDICO platform, the participant's corresponding application through the InTouch+ platform must indicate an abstract is being submitted and the Form for Submission of a Paper (Form B), automatically generated by InTouch+, must be submitted as part of the InTouch+ application. Both the abstract submission through the INDICO platform and the participation application via the InTouch+ platform must be completed by **25 September 2026**.

Presentations should be submitted through the INDICO platform prior to the start of the Workshop by **19 October 2026**.

Expenditures and Grants

No registration fee is charged to participants.

The IAEA is generally not in a position to bear the travel and other costs of participants in the event. The IAEA has, however, limited funds at its disposal to help meet the cost of attendance of certain participants. Upon specific request, such assistance may be offered to normally one participant per country, provided that, in the IAEA's view, the participant will make an important contribution to the event.

The request for financial support should be made, together with the submission of the application via the InTouch+ platform, by **25 September 2026**.

Venue

The event will be held at the Vienna International Centre (VIC), where the IAEA's Headquarters are located, in Building C, Room CR3 on the seventh floor. Participants must make their own travel and accommodation arrangements.

General information on the VIC and other practical details, such as a list of hotels offering a reduced rate for IAEA participants, are listed on the following IAEA web page:

www.iaea.org/events.

Participants are advised to arrive at Checkpoint 1/Gate 1 of the VIC one hour before the start of the event on the first day in order to allow for timely registration. Participants will need to present an official photo identification document in order to be admitted to the VIC premises.

Visas

Participants who require a visa to enter Austria should submit the necessary application to the nearest diplomatic or consular representative of Austria at least four weeks before they travel to Austria. Since Austria is a Schengen State, persons requiring a visa will have to apply for a Schengen visa. In States where Austria has no diplomatic mission, visas can be obtained from the consular authority of a Schengen Partner State representing Austria in the country in question.

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Subsequent correspondence on scientific matters should be sent to the Scientific Secretary/Secretaries and correspondence on other matters related to the event to the Administrative Secretary.

Event Web Page

Please visit the following IAEA web page regularly for new information regarding this event:

www.iaea.org/events/EVT2205116

INDICO Webpage for Paper Submission:

<https://conferences.iaea.org/event/489/>