



Regional Training Course on the Use of Radiation Technologies for Polymer Waste Recycling

Hosted by

The Government of Germany

through the

Hochschule für Technik und Wirtschaft Dresden
(University of Applied Sciences Dresden)

Dresden, Germany

1 -5 July 2024

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Information Sheet

Purpose

The purpose of the event is to train the participants in the potential of radiation technology for treating and valorizing polymer waste and integrating radiation processing systems into the plastic recycling and production chain for creating value-added products.

Working Language(s)

The working language(s) of the event will be **English**.

Deadline for Nominations

Nominations received after **19 April 2024** will not be considered.

Project Background

Plastic pollution is a pressing environmental issue that threatens sustainable development and eventually, our way of life. It is becoming increasingly evident that the environmental challenges facing humanity extend beyond local and regional scales, reaching a continental scope. Consequently, there is a growing demand for economically and technically viable pollution control technologies to address those issues. Thus, the reuse, recovery, and the recycling of plastics, as well as a change to a “design from recycling” and “design for recycling” are extremely important. However, a major challenge in recycling post-consumer plastics like PE, PP, PTFE, and mixed plastic wastes, is their low utilization rate in manufacturing, leading to lower-value products (DOWNcycling). Mechanical recycling can only be economically viable if high-performance products with market demand are produced (UPcycling). To achieve such products, effective modification of plastic material is essential. Modification in polymeric structure of plastic material can be brought either by conventional chemical means or as has been recently demonstrated, by exposure to ionising radiation. Recent advancements in irradiation technology, such as electron beam (E-beam) processing, offer promising solutions for plastic recycling. The IAEA plays a pivotal role in advancing the utilization of radiation processing. The agency facilitates the transfer of radiation processing technologies, encourages the sharing of knowledge and expertise, and fosters the development of a professional network dedicated to environmental protection and the sustainable utilization of resources as well as the quality assurance (QA) of radiation facilities. These endeavours are underpinned by the harmonized and safe implementation of radiation technologies through the RER1024 project. The focus of this regional training course (RTC) is to provide actionable knowledge in adopting radiation technologies, discuss challenges in integrating radiation processing into recycling, and highlight the potential for industrial applications.

Scope and Nature

The training course aims to strengthen the knowledge, practical applications and the benefits of using radiation technology to modify polymers, with emphasis of polymeric wastes, to obtain new products with added value.

- The training will include country presentations, theoretical lectures, and practical exercises to facilitate sharing experiences.
- Discuss the case studies examples on the current available technology and potential future systems, for implementation reference of future projects.
- Discuss potential areas in environmental protection and the efficient and sustainable use of resources with case studies and pilot implementation of methodology, tools and approach developed through the project.

Participation

The event is open to participants from the participating Member States of the project RER1024, particularly in polymer waste recycling. Participants must match the profile described in the corresponding paragraph below. Participation of young researchers and women is highly encouraged.

Participants' Qualifications and Experience

The candidates must be actively involved in polymer processing, particularly polymer waste. Also, it is advisable that candidates have knowledge and experience in the characterization of polymers. Characterization techniques include determination of properties such as: mechanical, chemical, spectroscopic, and optical. Experience in the use of ionizing radiation for the modification of polymers will be valued.

Application Procedure

Candidates wishing to apply for this event should follow the steps below:

1. Access the InTouch+ home page (<https://intouchplus.iaea.org>) using the candidate's existing Nucleus username and password. If the candidate is not a registered Nucleus user, she/he must create a Nucleus account (<https://websso.iaea.org/IM/UserRegistrationPage.aspx>) before proceeding with the event application process below.
2. On the InTouch + platform, the candidate must:
 - a. Finalize or update her/his personal details, provide sufficient information to establish the required qualifications regarding education, language skills and work experience ('Profile' tab) and upload relevant supporting documents;
 - b. Download and complete the [Designation of Beneficiary and Emergency Contact Form](#), and upload to InTouch+ ('Profile' tab under the personal section) specifying the document name. If already provided, kindly discard this step; and
 - c. Search for the relevant technical cooperation event (**EVT2402014**) under the 'My Eligible Events' tab, answer the mandatory questions and lastly submit the application to the required authority.

NOTE: Completed applications need to be approved by the relevant national authority, i.e. the National Liaison Office, and submitted to the IAEA through the established official channels by the provided designation deadline.

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

Should online application submission not be possible, candidates may download the nomination form for the training course from the [IAEA website](#).

NOTE: A medical certificate signed by a registered medical practitioner dated not more than four months prior to starting date of the event must be submitted by candidates when applying for a) events with a duration exceeding one month, and/or b) all candidates over the age of 65 regardless of the event duration.

Administrative and Financial Arrangements

Nominating authorities will be informed in due course of the names of the candidates who have been selected, and will at that time be informed of the procedure to be followed with regard to administrative and financial matters.

Selected participants will receive an allowance from the IAEA sufficient to cover their costs of lodging, daily subsistence and miscellaneous expenses. They will also receive either a round-trip air ticket based on the most direct and economical route between the airport nearest their residence and the airport nearest the duty station through the IAEA's travel agency AX Travel Management, or a travel allowance, or they will be reimbursed travel by car/bus/train in accordance with IAEA rules for non-staff travel.

Disclaimer of Liability

The organizers of the event do not accept liability for the payment of any cost or compensation that may arise from damage to or loss of personal property, or from illness, injury, disability or death of a participant while he/she is travelling to and from or attending the course, and it is clearly understood that each Government, in approving his/her participation, undertakes responsibility for such coverage. Governments would be well advised to take out insurance against these risks.

Note for female participants

Any woman engaged by the IAEA for work or training should notify the IAEA on becoming aware that she is pregnant.

The Board of Governors of the IAEA approved new International Basic Safety Standards for Protection against Ionizing Radiation and for the Safety of Radiation Sources. The Standards deal specifically with the occupational exposure conditions of female workers by requiring, inter alia, that a female worker should, on becoming aware that she is pregnant, notify her employer in order that her working conditions may be modified, if necessary. This notification shall not be considered a reason to exclude her from work; however, her working conditions, with respect to occupational exposure shall be adapted with a view to ensuring that her embryo or foetus be afforded the same broad level of protection as required for members of the public.

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