



Contribution ID: 52

Type: **not specified**

## Outcomes of the TRANSAT (Transversal actions for tritium) EU project

*Thursday, May 25, 2023 11:45 AM (25 minutes)*

In the framework of H2020 Euratom research and innovation programme, TRANSAT (TRANSversal Actions for Tritium) is a 54 months multidisciplinary project built to contribute to Research and Innovation on cross-cutting activities required to improve and disseminate knowledge on tritium management in fission and fusion facilities. TRANSAT has started in 2017 and was built to answer the main following challenges:

- tritium release mitigation strategies,
- waste management improvement,
- refinement of the knowledge in the field of radiotoxicity, radiobiology and dosimetry,
- promote the knowledge dissemination about tritium management.

To evaluate the scientific tasks to be covered in TRANSAT, all the open issues at each step of the tritium life cycle that have not yet been addressed within European research programs or in previous studies have been analyzed. This general landscape has been focused on crosscutting activities on fusion and fission.

The aim of this presentation is to give a general overview of the major outcomes of the technical topics that have been covered by the eighteen partners of the project.

In particular, this paper will focus on:

- the development and test of new permeation barriers,
- the control of online tritium effluents by innovative technical solution,
- the development of new diagnostics for tritiated Low Level Wastes characterization
- the improvement of the modelling tools of tritium migration in fusion/fission reactors.

In addition, part of the project deals with radiotoxicity, radioecology, radiobiology and dosimetry on tritiated particles produced during dismantling, whose impacts have never been addressed before. The results of these activities will be also presented.

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**Session Classification:** Tritium analytics and application

**Track Classification:** Oral presentations