Contribution ID: **515** Type: **Poster**

TCAP hidrogen isotope separation process under development at ICSI Rm. Valcea

Wednesday 7 June 2017 13:40 (2 hours)

A pilot plant for tritium removal from tritiated water is in operation at ICSI Ramnicu Valcea and is based on catalytic isotopic exchange between tritiated water and hydrogen/deuterium followed by cryogenic distillation aiming to recover tritium. A cryogenic distillation cascade consisting of four distillation columns is in operation and significant effort is required in various batch mode operations for achieving high tritium concentration. The main drawback of the cryogenic distillation cascade that is the tritium hold-up, may be overcome by complementing the cryogenic cascade with a thermal cycling adsorption process. The main references of the mathematical model will be presented together with some references for the key components, such as the adsorbent. A comparative evaluation of various adsorbents will be given having in view the trade-off between the adsorption properties and the thermal properties of various adsorbents that have potential for implementation in such a process.
The process will be developed and provisions will be considered in view of scaling up for large throughputs having as ultimate goal the implementation in the Tritium Removal Facility from NPP Cernavoda. The developments are also relevant for the fusion activities such as ITER and DEMO.

Eligible for student paper award?

No

Authors: Dr ANA, George (ICSI Rm. Valcea); Mrs DRAGHIA, Mirela (IS TECH Timisoara); Mrs NICULESCU , Alina (ICSI Rm. Valcea); Dr BORNEA, Anisia (ICSI Rm. Valcea); Mr ZAMFIRACHE, Marius (ICSI Rm. Valcea)

Presenter: Dr ANA, George (ICSI Rm. Valcea)

Session Classification: W.POS: Poster Session W

Track Classification: Tritium extraction and control