

# Nuclear Fuel cycle options and fuel reprocessing

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Nuclear fuel cycle options are key for the sustainability of nuclear systems: natural resource consumption, final waste amount and residual toxicity depend to a large extent on the way nuclear fuels are managed from the front-end ( fuel manufacturing to feed nuclear reactors) to the back-end ( used fuel management) of the fuel lifecycle.

The proposed lectures:

- will present an overview of the different fuel cycle options worldwide ( principles, state of the art, rationale for each option);
- will give a particular focus on back-end reprocessing operations ( goals, scientific basis of reprocessing processes);
- will discuss recent advances and possible future trends for research in this field (scientific challenges, emerging technologies, generation IV systems specific needs and potentialities,...).

*NB: In addition to lectures, brief tutorials based on practical cases could be given (how to use some basic concepts presented)*