Cycle of studies: (Bachelor LT/ Master LM)
Degree course: Energy engineering, Materials engineering, Chemical Engineering, Chemistry
Title of the thesis: Water chemistry definition for power plants cooling circuits
Type: experimental/modelling
RFX Supervisor: Claudia Gasparrini
Academic supervisor: Prof. Piergiorgio Sonato
Head of the RFX research group: Andrea Rizzolo
Leader of the RFX research program: Mauro Dalla Palma
Description of the thesis:

In the race to harness electricity from nuclear fusion the challenges related to materials integrity during long term operation of fusion reactors have to be overcome. One of such challenges yet to be solved is the mitigation of corrosion issues in the extreme conditions found in fusion reactors. The control of water chemistry in fusion cooling circuits is a field of research that is taking more interest lately. In this thesis you will get an overview of cooling circuit requirements for nuclear fusion experimental reactors and you will contribute directly to the development of water chemistry definition for the Divertor Tokamak Test (DTT) facility. DTT is an experimental facility under construction at ENEA Frascati, Italy dedicated to the optimization of the divertor, a key component in nuclear fusion power plants. DTT will exploit the alternation of water and borated water in the Vacuum Vessel (VV). The definition of an optimized water chemistry in the VV cooling circuit is key to ensure maximum availability of the reactor and ensuring materials integrity. During this thesis you will learn the techniques used in water chemistry optimization and perform experiments in support of the DTT water cooling circuit chemistry definition.

Previous experience (if necessary):
Date:
Status: (assigned/available)
Name of the student: (when assigned)