

**PhD in Fusion Science and Engineering
Università di Padova e Napoli “Federico II”**

Call for admission to the PhD courses 2020/21 (XXXVI cycle)

Research topic funded by ENI S.p.A.

PROJECT TITLE	Review and comparison of divertor configurations for High Magnetic Field Tokamak
FUNDED BY	ENI
CONTACT PERSON	Paolo Innocente paolo.innocente@istp.cnr.it
SHORT DESCRIPTION	<p>Managing power exhaust on divertors is a fundamental task for all tokamak devices but it becomes furthermore important for the new generation of high toroidal field ones because they will be characterized by high density energy and short heat flux decay length.</p> <p>For the study and optimization of solutions for heat flux reduction, it is crucial the use of reliable edge modelling codes in which an important role is played by the interaction of neutrals (atoms and molecules) with themselves, plasma and wall.</p> <p>The proposed activity aims to develop the competences on plasma exhaust to participate to the optimization of new tokamak devices and to contribute to the development of better edge codes.</p> <p>To reach these objectives, a comparative study of divertors configurations foreseen for new high magnetic field tokamaks will be done, while the presently used kinetic neutral codes will be analyzed and improved by a coupling with a self-consistent divertor model based on particle methodology (PIC-DSMC).</p>