5.1 - Project name

Participation in the TJ-II programme

5.2 - Project team

Please fill the table below with the team data. Add more rows if required.

Name	Degree	% participation
N. Example	Doctorate researcher	100 %

5.3 - Summary and highlights of research achievementes

Provide a concise description of the main research achievements during the year.

Figures, tables, graphics etc must have captions.

Graphic files must be submitted separately from the text (i.e. not embedded), and have a resolution of at least 150 dpi.

5.3.1 Introduction

5.3.2 Edge physics

Evolution of the turbulence structure during the generation of edge sheared flows in the TJ-II stellarator

A reduction in the scale length of the fluctuations is observed in regions of strong mean shear, which is effective mainly for low frequency fluctuations in the radial direction and for high frequencies in the poloidal direction. Discharges with density ramp show that radial and poloidal correlations are reduced before the shear layer is formed and that the long-range correlation is high during this process suggesting the importance of fluctuating shear flows in the development of the mean flows with shear. High frequency floating potential fluctuations are reduced when the long-range correlation is high suggesting an energy transfer from small scales to large structures. TJ-II observations are therefore consistent with a picture of amplification of zonal flow-like structures above a certain density, which then in turn reduces the turbulent scale length before the development of a mean flow shear.

Installation of a Gundestrup probe for plasma rotation measurements in the TJ-II edge plasma

A Gundestrup probe has been installed on the TJ-II to measure the edge parallel and perpendicular plasma rotation. The probe has been used in floating potential mode due to tungsten electrodes emission in the region inside the LCFS, strongly limiting the use of the probe. The Gunsdestrup probe has been used in discharges with dynamic electrode bias (bias with a triangular waveform with frequencies around 400 Hz) to study the parallel and perpendicular viscosity by exploring the different evolution of the two components of the edge flow.

5.3.3 X-ray diagnostics