

Abstract for EPS 94

Radiation losses in FTU

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Radiation losses from the FTU plasma are measured (temporally and spatially resolved) with a 16 channel bolometer array, arranged in a pin-hole-camera, which observes the half poloidal plasma cross-section.

The bolometer consists in a metal resistor bridge which has been successfully tested on other tokamaks (Asdex, JET and Tore Supra).

The total radiated power and the radial profiles of emissivity are calculated by the Abel inversion technique, assuming poloidal symmetric emission.

The bolometric emission profiles for FTU plasmas, where the dominant impurity is Nickel, are fitted utilizing a 1-D impurity transport code with an expression for the anomalous flux with a diffusive term plus a pinch term. The absolute values of the central impurity densities were obtained by x-ray PHA measurements, and are used as input to the code to have both a qualitative and a quantitative comparison with the experimental results for a wide parameter range.

For FTU plasmas, the capability of reconstructing radial profile is limited by the presence of marfes, which are characterized by strong poloidally asymmetric radiation. A method has been developed to calculate the radiation emission from marfe both for complementing the profile reconstruction and for characterizing the marfe.

In this paper we present the algorithm used together with the analysis of the behaviour of the marfe over a wide range of plasma parameters and plasma operating conditions.