

Electron transport: presentation of the first results of the EFDA TTG working group.

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Ion transport in a wide range of operation scenarios can qualitatively be explained by theory-based models. Transport in other channels, in particular the electron transport, are not understood with the same level of confidence. From a theoretical point of view, two instabilities contribute: large ion scale (ITG/TEM) and smaller electron scale (ETG) instabilities, as well as the interplay of these scales (this is a great challenge for both diagnostics and simulations). In addition, magnetic instabilities like microtearing or Alfvénic modes could also provide a channel of electron heat transport in high beta scenarios.

In 2010, a working group on electron transport has been set-up within the EU EFDA Transport Topical Group in order to facilitate the exchange of knowledge between the EU research centers, to support some essential diagnostic developments and updating of code as well as to perform physics studies. The present report will explain the objectives of the working group, cover the first results of the coordination, and discuss various proposals for 2011.