

Overview of transport studies in the first campaigns of the Wendelstein 7-X stellarator

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Since the start of operations in September 2015 the Wendelstein 7-X stellarator has conducted a limiter and a divertor campaign. A second phase of the latter is scheduled to start in July 2018. In this period the device has been commissioned and conditioned to produce helium and hydrogen plasma discharges of considerable duration ($< 30\text{s}$), input energy ($< 76\text{ MJ}$) or energy content ($< 1.1\text{ MJ}$). Alongside the improvements in performance, a large number of systems and diagnostics have been brought into routine operation, which have allowed the conduction of initial experimental transport studies and confrontations with theoretical predictions. These include studies of ion and electron energy fluxes as well as impurity radial flux, bootstrap current and radial electric field among others. In this poster contribution we will present an overview of these investigations, highlight the main conclusions and drawing the prospects of the experimental assessment of neoclassical transport optimization.