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Developing Divertor and Edge Modelling Studies for Advanced Configurations in the Divertor Tokamak Test Facility[1] MICHAEL WIGRAM, B. LABOMBARD, M. GREENWALD, MIT PSFC, Cambridge, MA 02139, USA, C. MEINERI, P. INNOCENTE, Consorzio RFX, Padova, Italy, M. MOSCHENI, F. SUBBA, NEMO group, Dipartimento Energia, Politecnico di Torino, Turin, Italy, ENEA COLLABORATION, CFS COLLABORATION, MIT COLLABORATION, ENI COLLABORATION — The divertor heat flux problem is an important unresolved dilemma facing future reactor-level fusion devices. A variety of divertor configurations need to be examined to assess their suitability to meet this challenge. The Divertor Tokamak Test (DTT) facility, whose construction is starting, is an important step towards answering this question. Studies are underway to develop the DTT divertor and edge modelling, to compare predictions for various configurations. Initially a code benchmarking study is performed between three edge-plasma codes: SOLPS-ITER, UEDGE and SOLEDGE2D, to assess the differences in physics/predictions between the codes, including a model validation study for the three codes for high current, high-field, and narrow SOL width plasma shots using Alcator C-Mod data. Modelling studies will then be performed for single-null configurations of the DTT divertor, and compared with long-legged double-null configurations such as the Super-X and X-point Target divertors to compare their relative performance and to explore the potential performance benefits that these configurations may offer. This contribution will present the current progress and state of this research.

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