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EX/1-1: Scenarios Development at JET with the New ITER-like Wall

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In the recent JET experimental campaigns with the new ITER-like-Wall(ILW), major progress has been achieved in the characterisation of the H-mode regime: i) plasma breakdown and L-mode operation have been recovered in a few days of operation, ii) stable type I ELMy H-modes with H_{98y2} close to 1 and $\beta_{N1.6}$ have been achieved in high triangularity ITER-like shape plasmas on the bulk divertor tungsten tile, iii) it has been shown that the ELM frequency is a determining factor for the control of the core radiation level from metallic impurity and iv) in comparison to carbon equivalent discharges, total radiation is similar but the edge radiation is lower and the plasma core radiation higher. The maximisation of confinement, the control of metallic impurity sources and heat loads are the main challenges facing the development of the ITER scenarios in JET in the ILW environment at higher current and toroidal which will get closer to dimensionless ITER parameters in terms of ρ and nu . This paper reviews the major physics and operational achievements and challenges that JET has to face to produce stable plasma scenarios (baseline and hybrid scenarios) with maximised performances with the ILW in support of ITER future operation.

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