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Effect of Collisionality and Effective Charge on the H-mode Pedestal Structure in DIII-D and JET,* M.J. Leyland, K.J. Gibson, *U of York*; T.H. Osborne, R.J. Groebner, P.B. Snyder, *GA*; M.N.A. Beurskens, C. Giroud, S. Saarelma, *CCFE*; X. Chen, *ORISE*; R. Nazikian, *PPPL*; DIII-D and JET Teams – After the installation of the ITER-like-wall, the energy confinement of high triangularity D₂ fueled JET baseline plasmas was degraded by up to 40% due to a reduction in pedestal performance. This could be partially recovered by changing the collisionality (ν^*) and/or effective charge (Z_{eff}) when seeding N₂. Pedestal measurements revealed a widening of the pedestal and a variation in gradient. Comparison to EPED pedestal-model predictions highlights the potential importance of a low-Z, Carbon-like, impurity at the plasma edge. We report on a dedicated DIII-D experiment that studied the role of ν^* and Z_{eff} on the pedestal structure through means of D₂-fueling, N₂-seeding and Li-dropping. Initial analysis shows with increasing D₂ fueling the pedestal does not widen and the ELM frequency increases in contrast to equivalent JET plasmas.

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