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Modelling of Multiple Impurity Effects in Tokamak Boundary Plasmas PAULA BELO, Centro de Fusao Nuclear, VASSILI PARAIL, GERARD CORRIGAN, UKAEA, JOHN HOGAN, Oak Ridge National Laboratory, DAVID HEADING, JAMES SPENCE, CARINE GIROUD, UKAEA, JET EFDA CONTRIBUTORS TEAM — Recent simulations using the EDGE2D code with *single* impurity species (either C or Ne) indicate that impurity compression and enrichment increase with the electron density until the onset of divertor plasma detachment. However, in ITER the boundary plasma (SOL) may contain *several* impurity species: the fusion ash (He), the wall materials (C, Be, W) and possibly seeded impurities (Ar, Ne). The aim of the present study is to determine if the presence of multiple impurity species in the SOL gives rise to synergistic effects on their compression and enrichment, specifically the effect of C on the screening of a seeded impurity (Ne). EDGE2D simulations for H-mode JET plasmas indicate little effect of C on compression and enrichment of Ne when $N_C/N_{Ne} < 0.3$, and a factor of two increase when $N_C/N_{Ne} > 3$ (N_C and N_{Ne} denote the total impurity content in the computational grid).

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