Numerical Study of impurity transport during real-time boron powder injection in EAST

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Many beneficial effects on the plasma performance have been observed recently in real-time boron powder injection experiments in EAST. It was found that the beneficial effects from B powder injection are more outstanding than those from Li powder injection. This works therefore focuses on the boron transport in the edge plasma and its effect on background plasma during real-time B powder injection in EAST, in comparison with Li powder injection under same conditions. The simulation method is adopted for the study and the work is carried out by using edge plasma code SOLPS-ITER. The preliminary results show that most of species in the SOL region are B\textsuperscript{1+}, B\textsuperscript{2+}, B\textsuperscript{3+}, while species B\textsuperscript{4+}, B\textsuperscript{5+} distribute mostly inside the separatrix. The distributions of these impurities exhibit different features. In the region next to the divertor target, the main impurities are B\textsuperscript{1+}, B\textsuperscript{2+} and B\textsuperscript{3+}, and the density of B\textsuperscript{1+} is about 3.75 times that of either B\textsuperscript{2+} or B\textsuperscript{3+}. Further work is under way, and detailed results and their analysis will be presented in the conference.