

## Study on impurity suppression using resonant magnetic perturbations and on-axis electron cyclotron resonance heating in EAST

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Impurity accumulation in core of fusion plasma can cool down the plasma. For ITER, W concentrations above  $\sim 10^{-4}$  may lead to unacceptable radiative cooling. Therefore, how to control the concentrations of impurity in the core of plasma is crucial issues for future fusion devices. On-axis electron cyclotron resonant heating (ECRH is a proved effective method to suppress impurity accumulation. Besides, in previous study, it is also found that the impurity is suppressed with the application of resonant magnetic perturbations (RMP) in EAST [1]. Therefore, in this study, the impurity transport study by combination of RMP and on-axis ECRH. It has been found that there is a synergistic effect of RMP and on-axis ECRH for the impurity suppression. In order to obtain an optimized RMP configuration for impurity suppression, the impurity behaviours are studied with different toroidal mode number of RMP, RMP coil current, and the phase difference between upper and lower RMP coil assembly. The experimental results are also analysis in detail for different RMP configuration.

Keywords: impurity suppression, on-axis ECRH, RMP

### REFERENCES

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