## P4.1006 Algorithm of calculating the passive signal of tokamak edge plasma for CXRS diagnostics

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Predictive modeling of passive signal of tokamak edge plasma charge-exchange recombination spectroscopy (CXRS) diagnostics remains a problem because of the necessity to combine solutions of theoretical problems, which need sophisticated numerical modeling. This includes: (i) modeling of the SOL(+divertor) plasma with account of impurities to be diagnosed with the Edge-CXRS diagnostics (such data are accumulated and being extended; for ITER see, e.g., the SOLPS (B2-EIRENE) [1] and OSM+EIRENE+DIVIMP [2] simulations); (ii) cross-sections of charge exchange reactions, which produce highly-excited atomic states of H-like impurity ions from collisions of impurity nuclei with hydrogen isotopes neutral atoms (including their low-lying excited states) of background plasma; (iii) the rates of the above-mentioned reactions for essentially non-Maxwellian velocity distributions function (VDF) of hydrogen isotopes neutral atoms (the VDF data may be generated, e.g., by stand-alone EIRENE code [3] simulations using the background SOL plasma data); (iv) the photon emission coefficients (PEC) data for interested impurity visible-light spectral lines in the case "iii" which is beyond the available data in ADAS and similar sources (these data may be generated, e.g., with the code [4], similarly to evaluation of active CXRS signal in [5]). Here we describe the algorithm of modeling the passive signal of edge-CXRS diagnostics in tokamaks, which uses the data (i)-(iv). Some preliminary results for passive signal of the ITER Edge CXRS diagnostics are presented.

## References

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