

# Monte-Carlo simulations of the electron-ion radiative recombination in the electron cooler plasma

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Recently proposed interpretation [1] of the enhancement effect, observed in the radiative recombination (RR) of bare ions with cooling electrons in cold magnetized plasma, explains this effect as a result of "transverse" distant collisions with large impact parameters (in the  $\mu\text{m}$  range) having the cut-off which depends on a strength of the magnetic B-field guiding the electron beam in the electron cooler.

In order to check the idea we have performed detailed Monte Carlo simulations for the radiative recombination of bare uranium ions with cooling electrons at the ESR electron cooler (GSI). Here the results of the simulations will be presented. In particular, the B-field dependence and importance of impact parameter cut-off for RR in magnetized electron cooler plasma will be discussed in details. The results will be compared with the RR rates measured for recombination of bare uranium ions with electrons in experiments at the GSI [2,3] and TSR [4].

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## References:

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