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Radiative capture of twisted electrons by bare ions. Going beyond the Born approximation

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The relativistic wave function of a twisted electron which accounts for the field of a bare ion in all orders is constructed. This wave function is utilized for the description of the radiative recombination of a twisted electron with a heavy ion. Two types of ionic targets are considered, namely the infinitely extended one and the target with a finite spatial distribution. For the infinite target we compare our results with the ones obtained previously in the framework of the first Born approximation. Additionally, the case when the twisted electron is a superposition is studied.

Collaboration

APPA

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