



QED theory of the multiphoton cascade transitions in atoms

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QED theory of multiphoton cascade transitions in atoms and ions is developed. This theory allows for the accurate description of the process important for astrophysical studies of the cosmological hydrogen recombination. In particular the $3s \rightarrow 1s+2\gamma$, $4s \rightarrow 1s+2\gamma$ and $3p \rightarrow 1s+3\gamma$ processes are considered and some controversies existing in the literature are resolved.

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