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## The optical properties of Hydrogen plasma described in the frame of the fully quantum method based on a cut-off Coulomb model potential

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The absorption coefficients of hydrogen plasma, calculated within the frame of cut-off Coulomb potential model, for the wide area of electron densities and temperatures observed within the solar atmosphere are presented here. The optical parameter of hydrogen plasma of mid and moderately high nonideality parameter could be described successfully, thus enabling the modeling of optical properties, especially the calculation of plasma opacity. The model was proven in both convergence towards normal condition, ideal plasma case, as well as with the help of analysis of the experimental data and further theoretical consideration. The model potential is solvable in entire space and within entire energy spectrum, thus the yielded wave function solutions are a combination of a special functions. The special form of the cut-of Coulomb potential, possesses an unique feature that enables the precise, fully quantum method of calculation of inverse Brehmstrahlung effect. Although the presented method development is still a work in progress the possibility of unifying a mode for both transport and optical properties of plasma within same model is an attractive direction for it's further development.

### Student poster?

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