Abstract

This paper adresses a different methods for solving a sixdimensional integral in a brute force way. The integral of interest is of the wave function for a helium atom in order to determine the ground energy between its two electrons. We will assume that the wave function for each elektron can be modelled like the single - particle wace function of an electron in the hydrogen atom. The function appears in several quantum mechanical applications and the methodes used to solve it are widley used when computing numericaly.

The methods used are Guassian quadrature, with both Guass-Legandre and Gauss-Laguerre and Monte-Carlo in order to compare accuaracy and speed/time for some of the methods.