

Analytical wave function of helium atom

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Schrödinger equation of the helium atom is one of the simplest problems in quantum mechanics (QM). The problem was formulated [1] soon after the discovery of QM. Highly accurate numerical estimates of the ground state energy are available [2] but the analytical structure of the wave function has not been determined until today despite of substantial effort in this direction. [3, 4, 5, 6, 7] The current talk is supposed to review the situation in the field and suggest a possible line of further development.

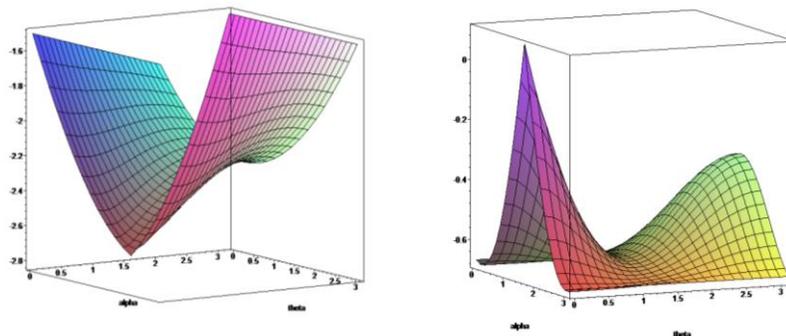


Figure 1. First-order wave function of helium atom (left) and a component of the second-order wave function of helium atom (right) in hyperspherical coordinates (α, θ)

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