

The objective of this thesis is the examination of a novel method for the calculation of spectra of helium-like ions. In the helium atom, the electron-electron interaction is difficult to account for as it often leads to numerical instabilities. A reformulation of this problem is proposed. A purely algebraic approach is then taken, yielding exact formulas for the atomic integrals. A numerically stable procedure is eventually employed, recovering back the physical Coulomb interaction.