

## CHAPTER OVERVIEW

### 4: Many-Electron Atoms

The hydrogen atom is the *only* atom for which exact solutions of the Schrödinger equation exist. For any atom that contains two or more electrons, no solution has yet been discovered (so no solution for the helium atom exists!) and we need to introduce approximation schemes. The helium atom is a good example of a many-electron atom (that is, an atom which contains more than one electron). No fundamentally new problems are encountered whether we consider two or ten electrons, but a very important problem arises in passing from the one-electron to the two-electron case.

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