Assignment 5

Due on 2019-04-24, 12:00:00

6.1 Hydrogen Atom: Level Structure

The energy levels of the hydrogen atom are given by

\[ E_n = -\frac{1}{n^2} \text{ Ry} \]

where \( n \) is a positive integer.

6.2 Hydrogen Atom: Electron Configuration

The electron configuration of the ground state of hydrogen is

\[ 1s^1 \]

6.3 Hydrogen Atom: Ionization Energy

The ionization energy of hydrogen is

\[ I = 13.6 \text{ Ry} \]

6.4 Hydrogen Atom: Excitation Energies

The excitation energy of the first excited state of hydrogen is

\[ \Delta E = 10.2 \text{ Ry} \]

6.5 Hydrogen Atom: Spectra

The spectra of hydrogen are line spectra with transitions between energy levels.

6.6 Hydrogen Atom: Magnetic Properties

The magnetic properties of hydrogen are paramagnetic.

6.7 Hydrogen Atom: Chemical Bonding

The chemical bonding in hydrogen is covalent bonding.

6.8 Hydrogen Atom: Applications

Hydrogen is used in various applications such as fuel cells and hydrogen fuel.

6.9 Hydrogen Atom: Future Prospects

The future prospects of hydrogen include the development of more efficient hydrogen fuel cells.

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Reference: