

CHAPTER OVERVIEW

10: Bonding in Polyatomic Molecules

The concept of a molecular orbital is readily extended to provide a description of the electronic structure of a polyatomic molecule. Indeed molecular orbital theory forms the basis for most of the quantitative theoretical investigations of the properties of large molecules. In general a molecular orbital in a polyatomic system extends over all the nuclei in a molecule and it is essential, if we are to understand and predict the spatial properties of the orbitals, that we make use of the symmetry properties possessed by the nuclear framework.

[10.1: Hybrid Orbitals Account for Molecular Shape](#)

[10.2: Hybrid Orbitals in Water](#)

[10.3: BeH₂ is Linear and H₂O is Bent](#)

[10.4: Photoelectron Spectroscopy](#)

[10.5: The pi-Electron Approximation of Conjugation](#)

[10.6: Butadiene is Stabilized by a Delocalization Energy](#)

[10.7: Benzene and Aromaticity](#)

[10.E: Bonding in Polyatomic Molecules \(Exercises\)](#)

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