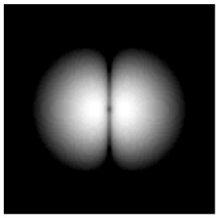
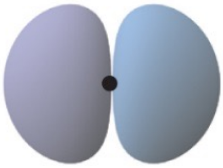
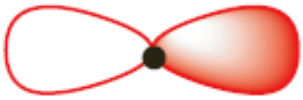
Atoms have atomic orbitals, molecules have MOs (Chapter 9)

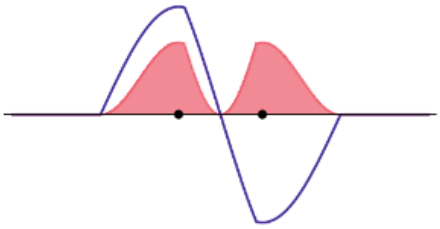


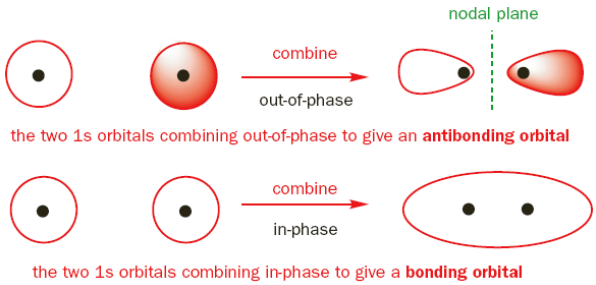


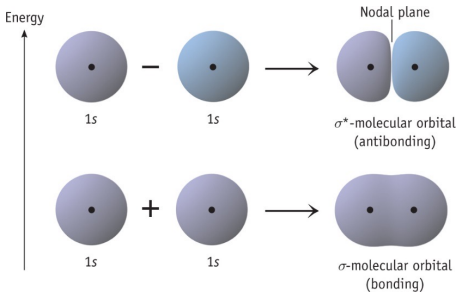


1

σ_{1s} and σ^*_{1s}







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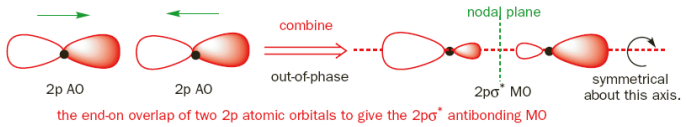
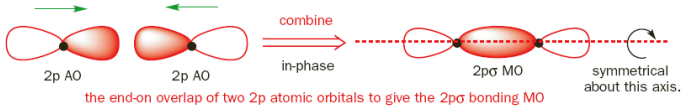
2

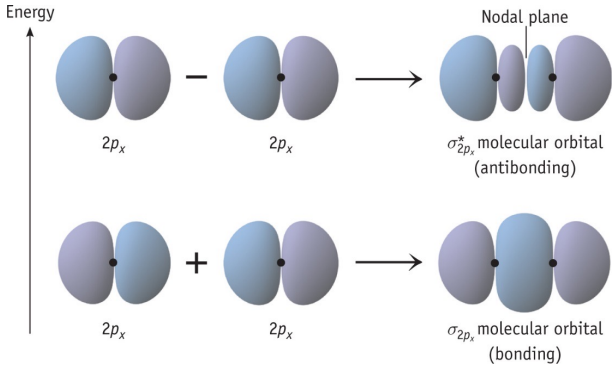
σ_{2px} and σ^*_{2px}



the end-on overlap of two 2p atomic orbitals to give the $2p\sigma^*$ antibonding MO



the end-on overlap of two 2p atomic orbitals to give the 2pσ bonding MO



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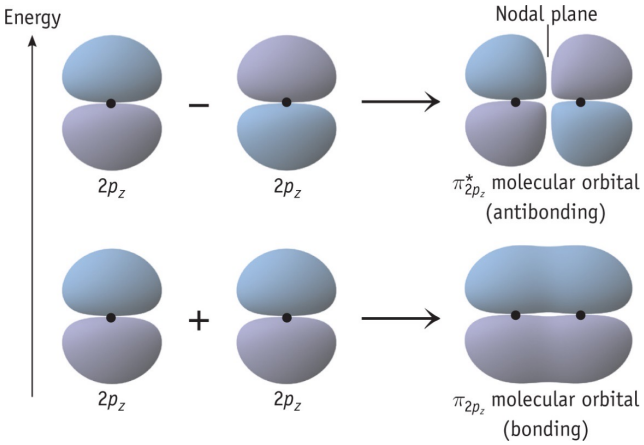
3

$\pi_{2py/z}$ and $\pi^*_{2py/z}$

the side-on overlap of two 2p atomic orbitals to give the $2p\pi^*$ antibonding MO

the side-on overlap of two 2p atomic orbitals to give the 2pπ bonding MO



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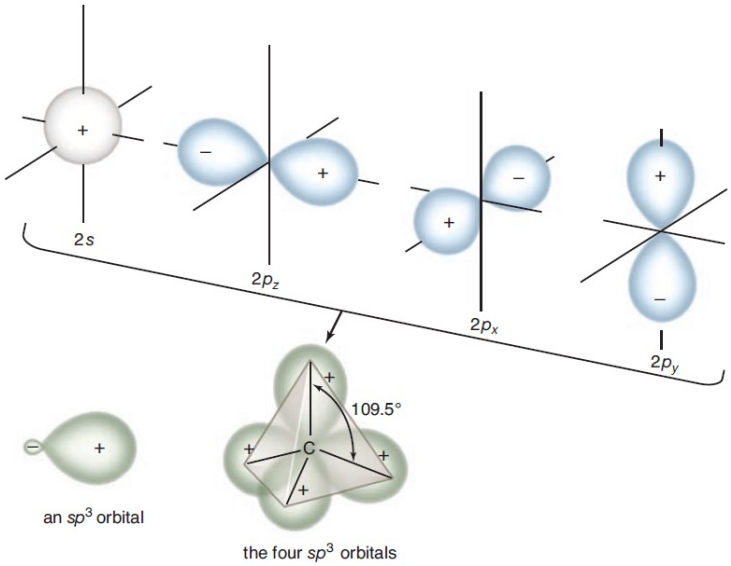
4

CH_4, H_2O, and NH_3 are SN = 4 (sp^3)



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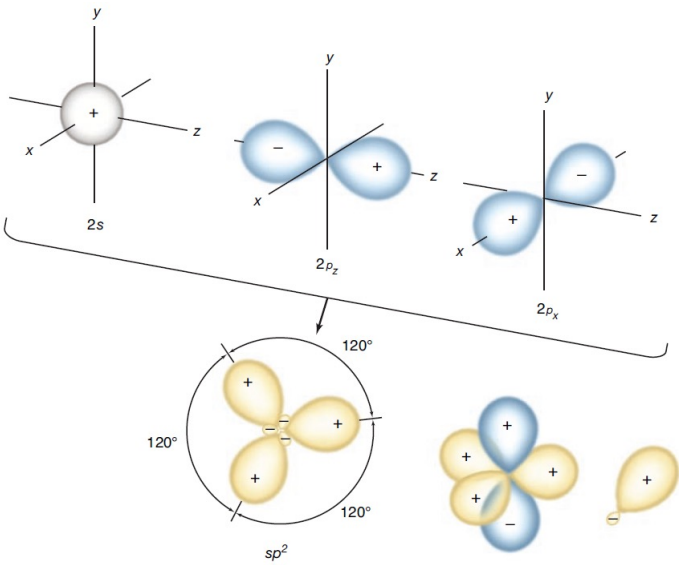
5

BH_3 and SO_2 are SN = 3 (sp^2)



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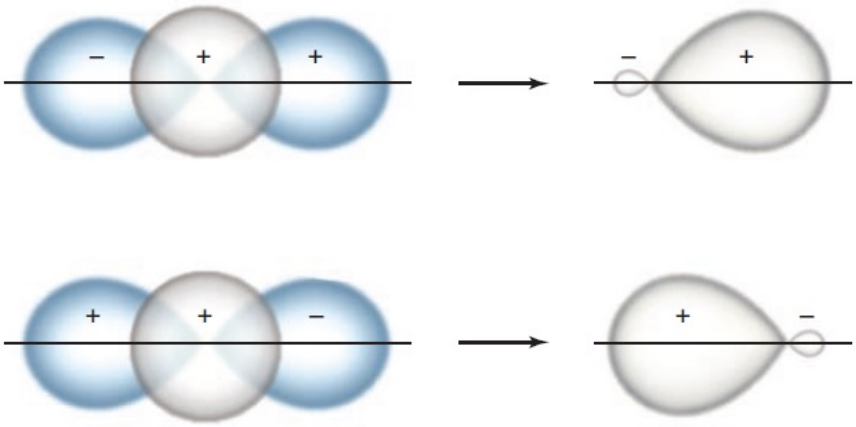
6

CO_2 is SN = 2 (sp)



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