

(16) **Today**

5.3 Heteronuclear Diatomic Molecules

5.4 Polyatomic Molecules

Next Class (17)

5.4 Polyatomic Molecules

(18) **Second Class from Today**

Chap 6 Acid-Base and Donor-Acceptor
Chemistry

Third Class from Today (19)

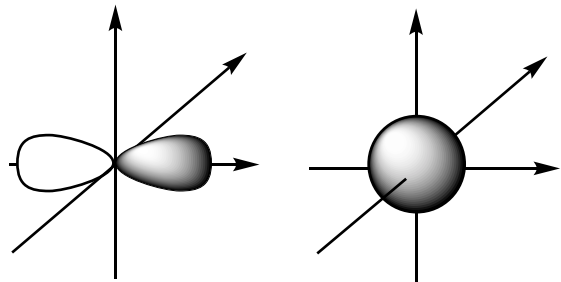
Chap 6 Acid-Base and Donor-Acceptor
Chemistry

Office Hours moved from 12:20 to 1:20 to 3:00 to 4:00 for the foreseeable future

Rework Test 1 and hand in on Friday, October 17. Rework means that you should, on a separate piece of paper, write a more complete answer for any question that you did not received full credit for. I do NOT need the test back.

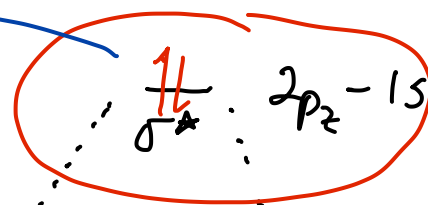
Heteronuclear Diatomic Molecules: HF

the z axis connects the 2 atoms Section 5.3



Lowest Unoccupied
Molecular Orbital

LUMO



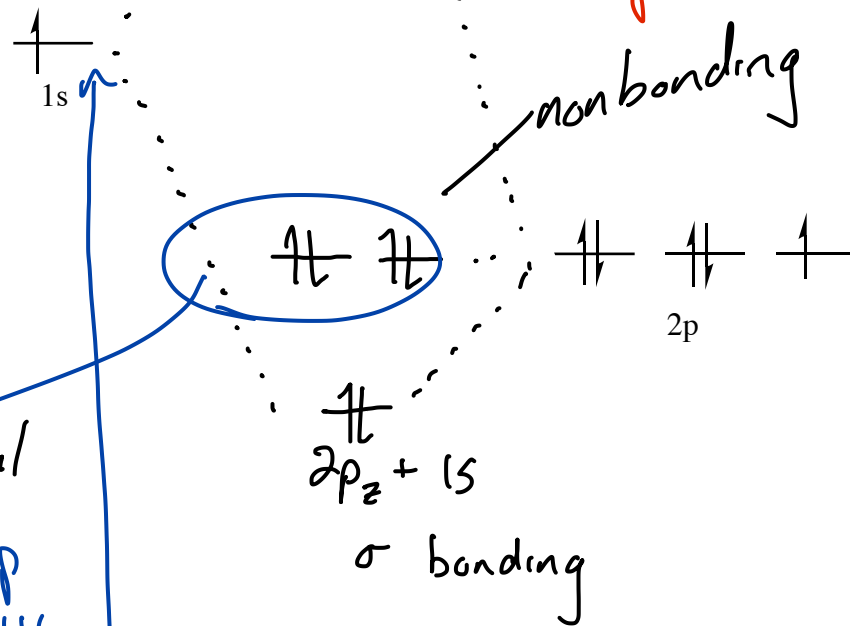
unoccupied
e⁻'s attracted
to this molecule
go here

e⁻'s in F's 2p + 2s
orbitals are lower in energy

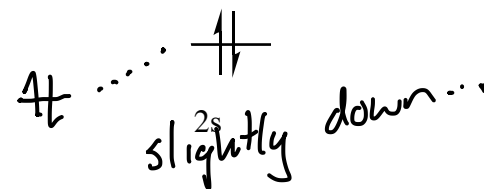
than the e⁻ in H's 1s
orbital. So we draw lines/orbital
lower on the page

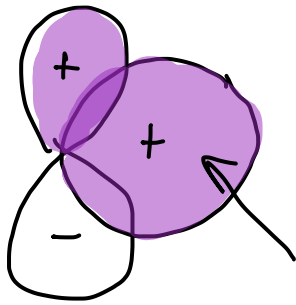
Highest Occupied Molecular
Orbital (HOMO) e⁻'s
donated by this molecule
come from here

large gap
very little
interacting
between
H's 1s + F's
2s



considered
non bonding





+ phase simultaneously interacting
 with + & - so this is not
 a symmetry appropriate interaction
 A molecular orbital cannot be formed
 from these 2 atomic orbitals

Heteronuclear Diatomic Molecules: CO

Section 5.3

LUMO electrophile

is centred on the C atom

MO's more similar to the AO's that

they are closer in E to

CO accepts e^- 's into the
C-centred π^* orbitals...

and the e^- donor's symmetry
must be compatible with the symmetry of the LUMO



HOMO Highest Occupied Molecular Orbital—

CO donates e^- density from this orbital

C-atom centred

Nucleophile

