HYBRIDIZATION

- How Do we Get 4 EQUIVALENT BONDS - SAME LENGTHS IN CH_4
  SAME ANGLES

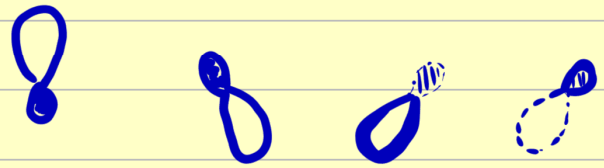
IF C HAS $1s^2\ 2s^2\ 2p_x^1\ 2p_y^1\ 2p_z^0$

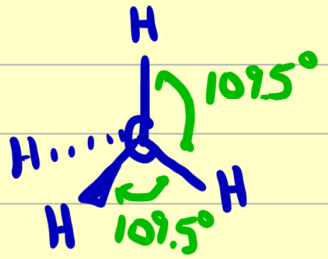
- MODEL THAT'S USED CREATES HYBRIDS OF S + P ELECTRONS (e^-'s)
- DEPENDS ON ATOMS AVAILABLE.

IF WE HAVE CH_4.

p ↑ ↑ ↑ → ↑↑↑↑ sp^3 HYBRID.

s ↑↓



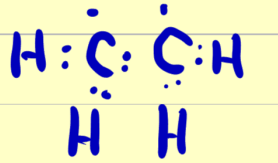


SHAPE: TETRAHEDRON

∴ sp^3 HYBRIDIZED C IS TETRAHEDRAL.

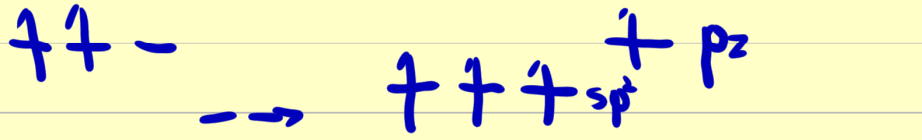
- CREATE 4 EQUIVALENTS BONDS AT ~ 109.5° ANGLES TO EACH OTHER.

CONSIDER C_2H_4

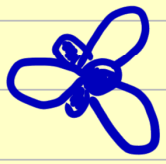


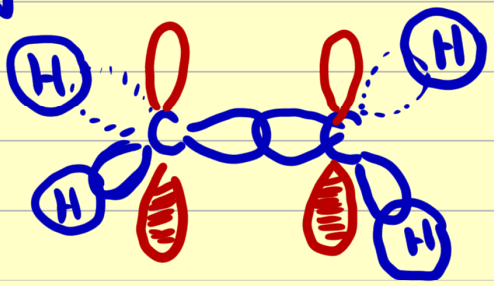
- DIRADICAL - Yuk! IN sp^3

HOW ABOUT sp^2 HYBRID, WITH ONE p UNAFFECTED



sp^2 Hybridization





- Carbon can form 3 σ bonds + one π bond.
- σ bonds are 120° from each other.
- Carbon is trigonal.

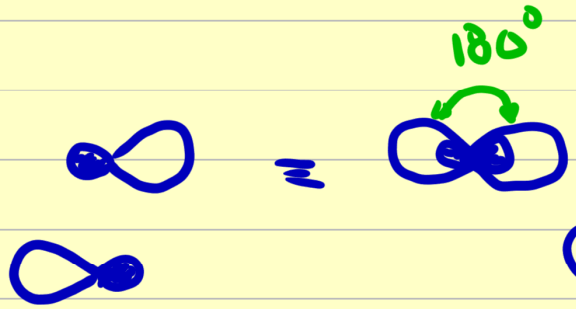
And C_2H_2?

- Requires sp hybridization.

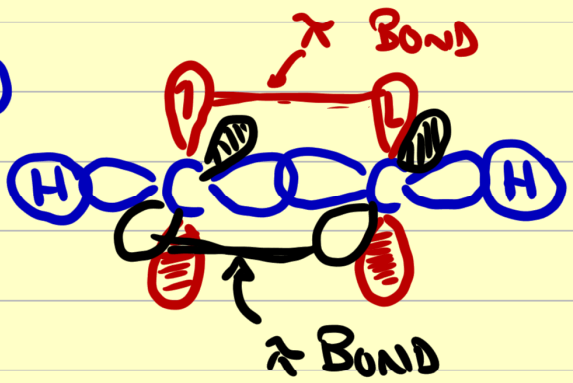
↑↑ – 2p → ↑↑ sp + p$_x$ + p$_z$

H_2S

sp Hybrid has Two Orbitals at 180° From Each Other



In C_2H_2



2 σ Bonds - at 180°

2 π Bonds

organ in chemistry.
- based ON C.
-AlSOHAS It, oil, Halogen,
SorP
C -RULEtt 4 Bonds.

- MAY' Have Sincle,DouBLE And/or
TRIPLE Bonds.
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3 BONDS
Free
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- Are a FEW CorilPOUNDS inith 2 Bonds
CARBENES
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Bonding. r

- Electro negativity = En
Of C =2.5 NKDRANGE

So IF

OE., 71.7 Ionic

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COXALEhlt.
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EP .. 'IL !

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Respectively.
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CAnl Have S Bonds
12 PHASE CHANGES)
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