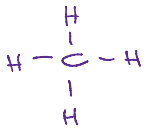
I	PARZIALE	Sabato 12 Aprile 2025 ore 9.00	Aule P1 P2 P3
II	PARZIALE	Martedì 17 Giugno 2025 ore 9.00	P300 P1 P2 P3
I	APPELLO ORALE	Martedì 24 Giugno 2025 ore 9.00	OB
II	APPELLO	Lunedì 7 Luglio 2025 ore 9.00	P1 + P2
	ORALE	Lunedì 14 Luglio 2025 ore 9.00	P300
III	APPELLO	Martedì 16 Settembre '25 ore 9.00 SOLO ORALE	P300
IV	APPELLO	Febbraio 2026	

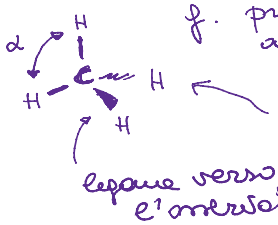
IBRIDAZIONE o IBRIDIZZAZIONE del C

f. bruta o molecolare CH_4

f. di struttura



f. prospettiche o a cavalletto



legami C-H tutti uguali $l = 1{,}1$ Å $(1\text{Å} = 10^{-10}\ m)$

$F = 104$ Kcal/mole

$\alpha = 109{,}5°$ (Angolo tetraedrico)

Configurazione elettronica del C nel suo stato fondamentale

^6C $\uparrow\uparrow$ — $2p$

$\uparrow\downarrow$ $2s^2$ → 96 Kcal/mole

$\uparrow\downarrow$ $1s^2$

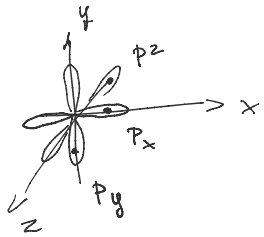
:CH_2 Radicale Metilene (esiste ma è molto instabile)

E ↑

C^* $\uparrow\ \uparrow\ \uparrow$ $2p^3$

$\uparrow$ $2s^1$

$\uparrow\downarrow$



→ Angoli di legame di 90°

IBRIDAZIONE di tipo sp^3 (partecipano l'orbitale 2s e 3 orbitali 2p)

E ↑

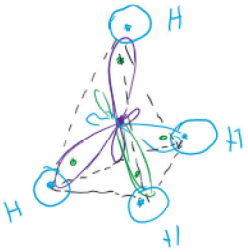
C^* $\uparrow\ \uparrow\ \uparrow$ $2p^3$ $\uparrow$ $2s^1$ ⟶ $\uparrow_{sp^3}\ \uparrow_{sp^3}\ \uparrow_{sp^3}\ \uparrow_{sp^3}$ 4 orbitali IBRIDI di tipo sp^3

$$\psi_{sp^3} = c_1\psi_{2s} + c_2\psi_{2p_x} + c_3\psi_{2p_y} + c_4\psi_{2p_z}$$

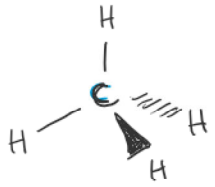
sp^3

1/4 CARATTERE S

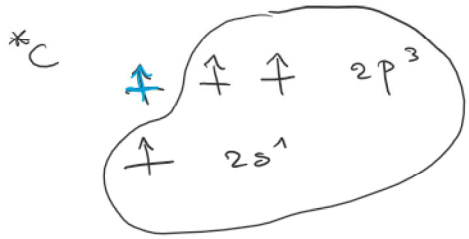
3/4 CARATTERE P

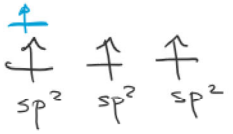


Il C è al centro di un tetraedro regolare e i 4 orbitali ibridi puntano verso i vertici del tetraedro



IBRIDAZIONE di tipo sp^2 (2s + 2 degli orbitali 2p)

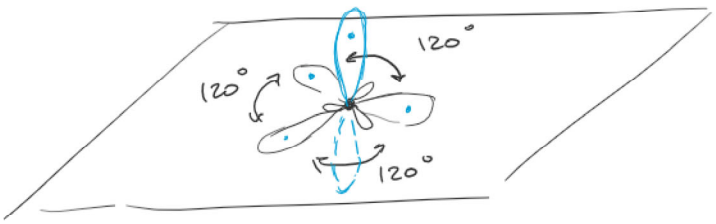


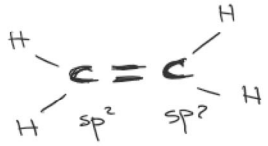


3 orbitali ibridi di tipo sp^2

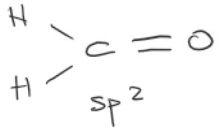
1/3 CARATTERE S

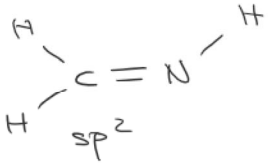
2/3 CARATTERE P

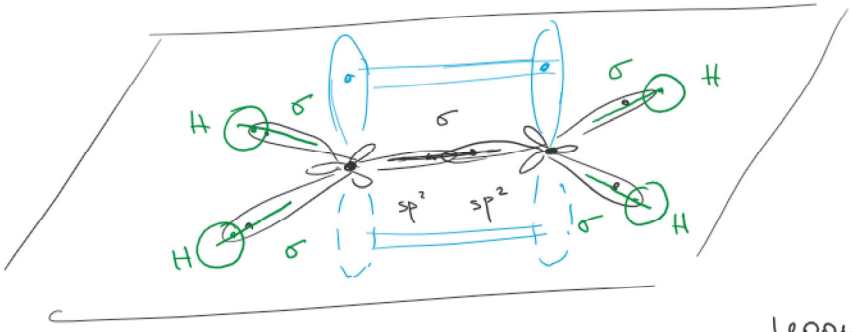




ETILENE o ETENE



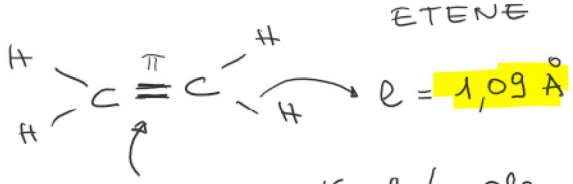




legame σ: ha la massima densità elettronica lungo la congiungente i nuclei

ETENE

ETENE

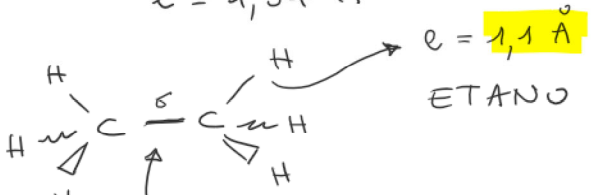


$\ell = 1{,}09$ Å

lungo la congiungente i nuclei

$F = 173$ Kcal/mole (Alla componente π spettano 65 Kcal/mole)

$\ell = 1{,}34$ Å



$\ell = 1{,}1$ Å

ETANO

$F = 90$ Kcal/mole

$\ell = 1{,}54$ Å

ETANO

sp^3

1/4 carattere s

ETENE

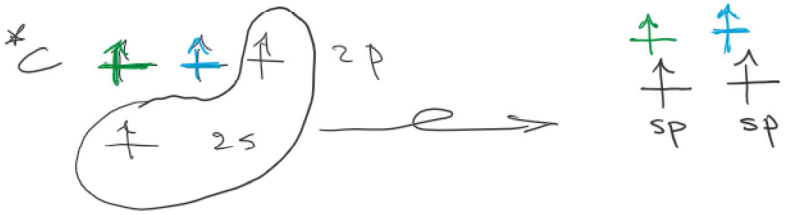
sp^2

1/3 carattere s

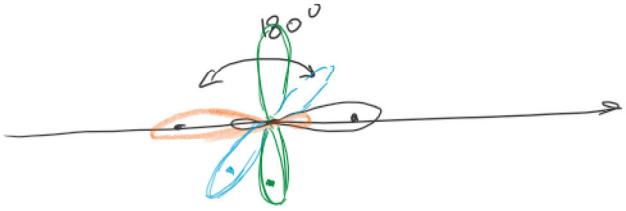
⇓

Maggior carattere sferico significa orbitale più vicino al nucleo e più corto

IBRIDAZIONE di tipo sp



2 orbitali ibridi di tipo sp



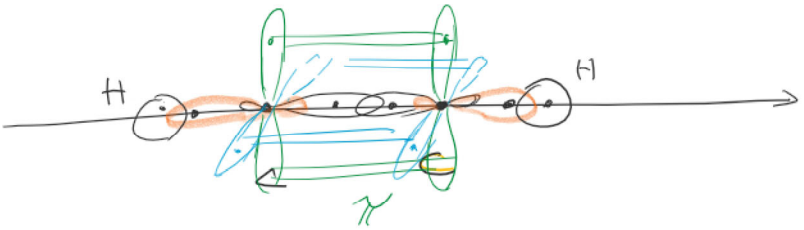
1/2 carattere s

1/2 carattere p

Le C è sp quando coinvolto in legami TRIPLI

$H - \underset{sp}{C} \equiv \underset{sp}{C} - H$ ETINO ACETILENE

$R - C \equiv N$



$\ell = 1{,}08$ Å

$H - C \equiv C - H$

$F = 200$ Kcal/mole

$\ell = 1{,}2$ Å