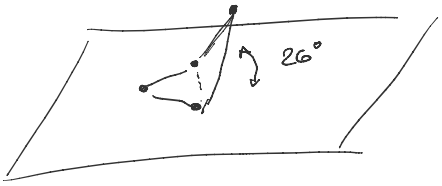
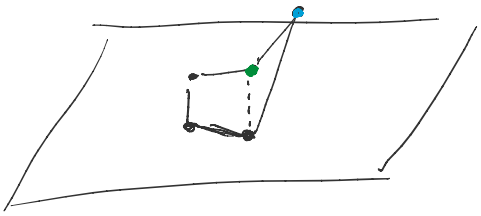
CICLOALCANI

• = CH_2

ciclobutano



ciclopentano

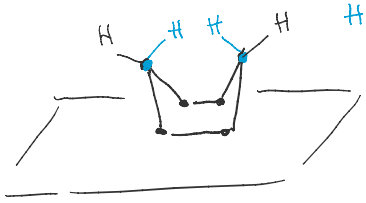


ENVELOPE

Pseudorotazione

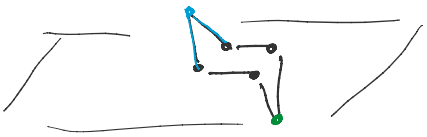
ANALISI CONFORMAZIONALE DEL CICLOESANO

H ad asse di bandiera (distanza = 1,8 Å)



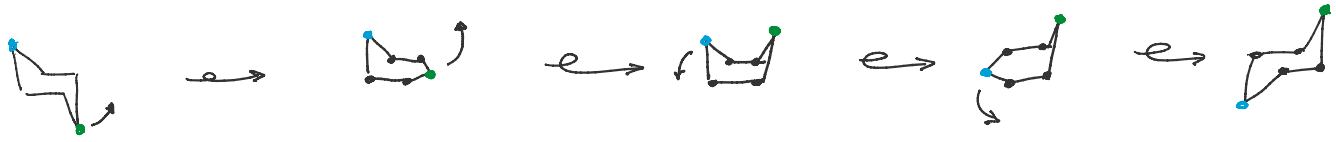
FORMA A BARCA (stereoisomero conformazionale)

Meno stabile delle forme a sedia per
1. repulsione tra H ad asse di bandiera
2. eclissamenti: tra H e tra C

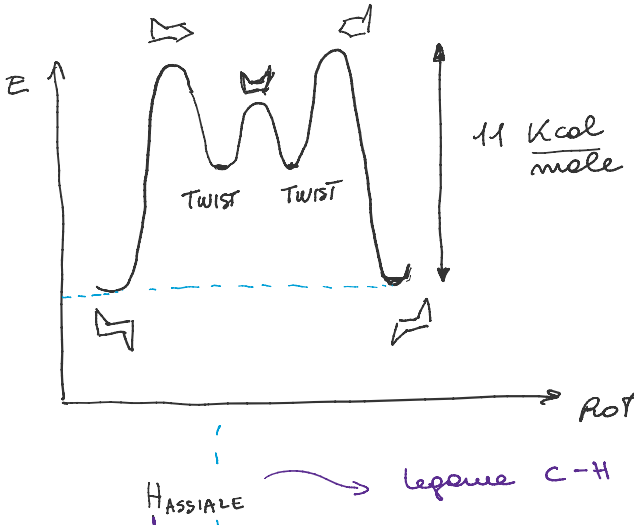


FORMA A SEDIA

Rotamero più stabile
Angoli di legame tetraedrici
Niente eclissamento di H o C

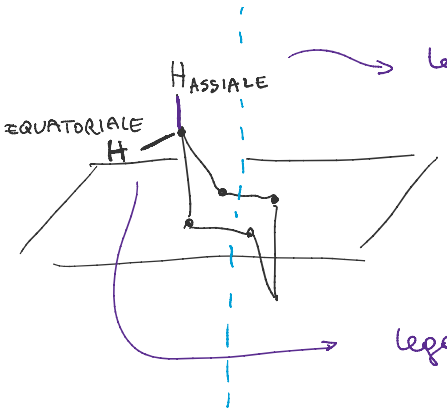


FORMA A SEDIA — SEMISEDIA — BARCA — SEMISEDIA — SEDIA



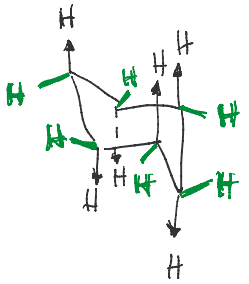
legame C–H parallelo all'asse

INTERCONVERSIONE SEDIA - SEDIA

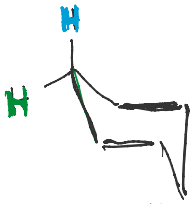


→ legame C–H parallelo all'asse

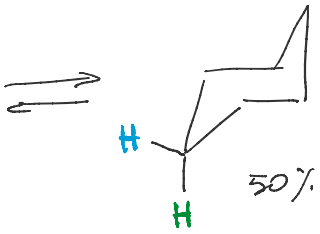
→ legame C–H circa parallelo al piano



puntano alternativamente verso l'alto e verso il basso



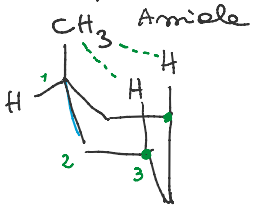
50%



50%

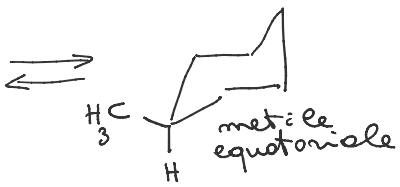
Nell'interconversione sedia – sedia l'idrogeno assiale è diventato equatoriale

Repulsioni 1,3 – DIASSIALI



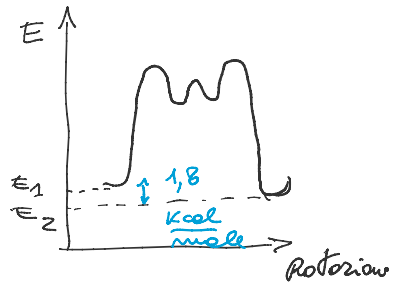
Metil cicloesano

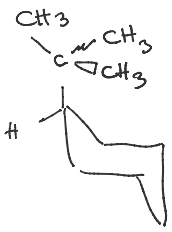
5%

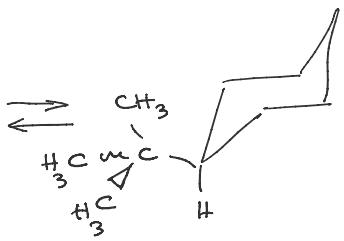


ROTAMERO più STABILE

95%



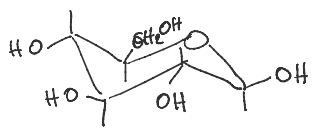




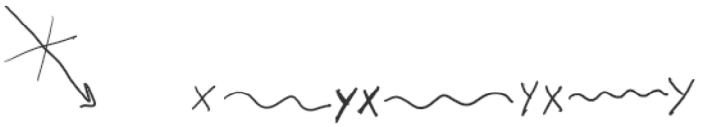
ROTAMERO più stabile

~100%

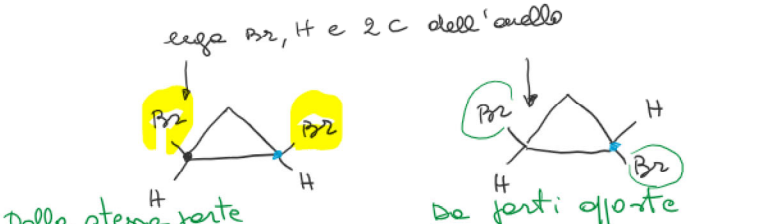
Differenza in energia tra le due sedie 5 kcal/mole



In condizioni di basse concentrazioni



Polimerizzazione



(gli isomeri di struttura hanno nomi IUPAC diversi)

Non sono isomeri di struttura

STEREOISOMERI
(= strutture ≠ disposizione spaziale)

~~CONFORMAZIONALI (ROTAMERI)~~ Il ciclopropano non ole' rotazioni

CONFIGURAZIONALI — ENANTIOMERI

DIASTEREOISOMERI

CARBONIO CHIRALE

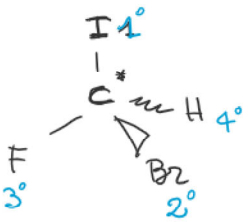
Quando un C tetraedrico ha 4 sostituenti diversi esiste come coppia di enantiomeri (due molecole una immagine speculare dell'altra ma non sovrapponibili)

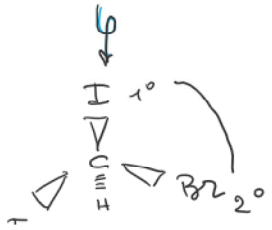
Denominazione R/S della configurazione del carbonio chirale

Regole di priorità di Cahn, Ingold e Prelog

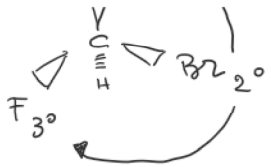
In base al numero atomico

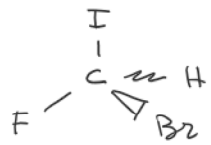
lega 4 atomi ≠

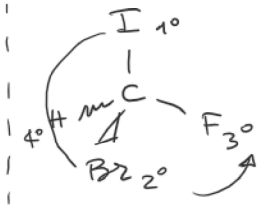




Se mi muovo in senso orario la CONFIGURAZIONE E' R



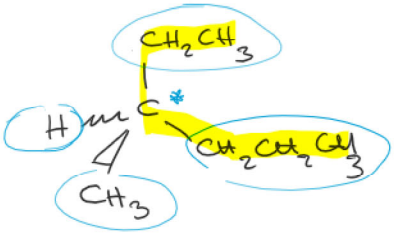


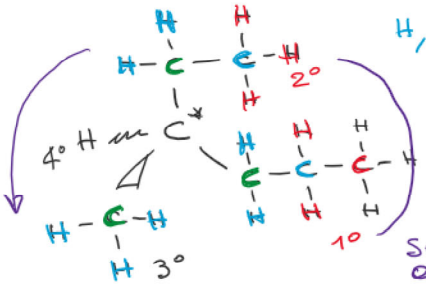


senso antiorario ⇒
CONFIGURAZIONE S

(R)- Bromo fluoro Iodio metano

(S)- Bromo fluoro Iodio metano





H, H, C

H, H, H

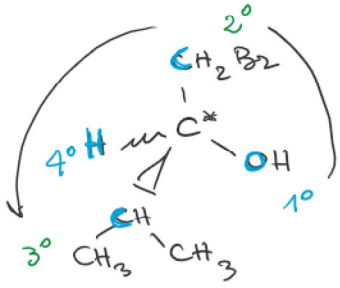
H, H, C

H, H, C

Senso antiorario

H, H, H

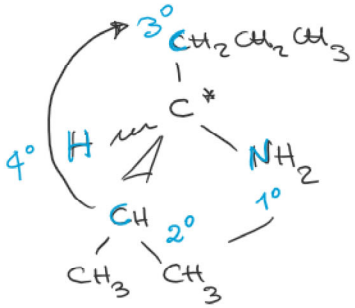
(S)- 3-metilesano



H, H, Br

H, C, C

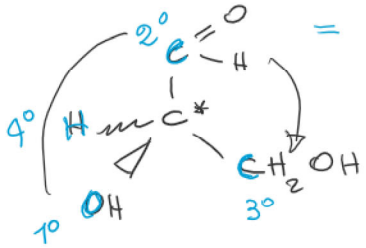
(S)

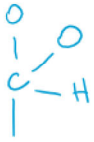


H, H, C

H, C, C

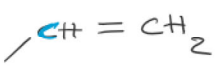
(R)





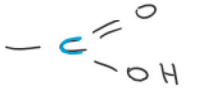
H, O, O

H, H, O



H, C, C

N, N, N



O, O, O

(R)- Gliceraldeide