Stereochemistry

Ref. Books:

- ✤ Organic Chemistry I. L. Finar Vol. 2
- Stereochemistry of Organic Compounds (Principles and Application)- D. Nasipuri
- Stereochemistry of Carbon Compounds
 E. L. Eliel
- Stereochemistry Conformation & Mechanism
 P. S. Kalsi



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Conformations Vs Configurations

- Conformations, different spatial orientations interchanging through C-C single bond
- Configurations, fixed spatial arrangement, requires bond breaking to interconvert
- Conformation types, staggered and eclipsed, chair and boat, gauche and anti
- Configuration types, enantiomers (R/S), diastereomers, cis-trans (E/Z)
- Conformers exist in equilibrium, isolable if energy difference large.
- Configurational isomers exit as distinct, isolable
- NMR and IR are used to identify
- Diffraction techniques (X-ray or neutron) are use to identify



















































































Allenes (1,2-propadiene)

An allene is a compound in which one carbon atom has double bonds with each of its two adjacent carbon centres.

General structure

$$Cab = C = Cde$$
 or $Cab = C = Cab$

The central carbon of allene forms two sigma bond and two π-bonds. The central carbon is sp-hybridized and the two terminal carbons are sp²-hybridized.



































Stereoconvergence: It can be considered an opposite of stereoselectivity, when the reaction of two different stereoisomers yield a single product stereoisomer.

Endo- and *exo-*trimethylsilyl-3-phenyl-2thiabicyclo[2.2.1] hept-5-enes and derivatives were protiodesilylated with fluoride ion.









































