Stereoisomerism

1) Terminology

**Constitution** $\Rightarrow$ list of which atoms bonded to which

- al isomers: same chemical formula, different list of bonds

**Conformation** $\Rightarrow$ instantaneous shape of molecule
determined by dihedral angles ($\text{cis}, \text{trans}$)
- al isomers (conformers) $\Rightarrow$ imprecise wording

**Configuration** $\Rightarrow$ shape characteristics of bonds that persist

- al isomers: same constitution, different configuration

$\Rightarrow$ Stereoisomers

**Configurational choices $\Rightarrow$ pairs of stereoisomers**

trans

Cis

not mirror images

diastereomers

mirror images

different (mp, bp, density, color)

enantiomers

 Achiral cmpds: molecules form their own mirror images

Chiral cmpds: one enantiomer

Rotates plane polarized light $\Rightarrow$ optically active