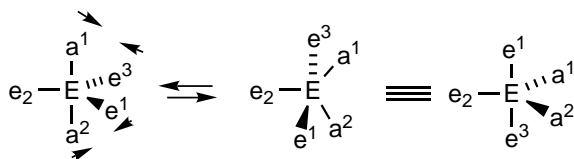


pseudorotation

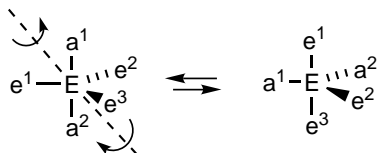
Stereoisomerization resulting in a structure that appears to have been produced by rotation of the entire initial molecule and is *superposable* on the initial one, unless different positions are distinguished by substitution, including isotopic substitution.

One example of pseudorotation is a facile interconversion between the many envelope and twist conformers of a cyclopentane due to the out of plane motion of carbon atoms.

Another example of pseudorotation (Berry pseudorotation) is a polytopal rearrangement that provides an intramolecular mechanism for the isomerization of trigonal bipyramidal compounds (e.g. λ^5 -phosphanes), the five bonds to the central atom E being represented as e^1 , e^2 , e^3 , a^1 and a^2 . Two *equatorial* bonds move apart and become *apical* bonds at the same time as the apical bonds move together to become equatorial.



A related conformational change of a trigonal bipyramidal structure is described as turnstile rotation. The process may be visualized as follows.



An apical and an equatorial bond rotate as a pair *ca.* 120° relative to the other three bonds. (Doubts have been expressed about the distinct physical reality of this mechanism.)

1996, 68, 2215