


Are covalent bonds really directed?

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ABSTRACT



The flux theory of the chemical bond, which provides a physical description of chemical structure based on classical electrostatic theory, correctly predicts the angles between bonds, to the extent that they depend on the intrinsic properties of the bonded atoms. It is based on the justifiable assumption that the charge density around the nucleus of an atom retains most of its spherical symmetry even when bonded. A knowledge of these intrinsic bond angles permits the measurement and analysis of the steric angular strains that result from the mapping of the bond network into three-dimensional space. The work ends by pointing out that there are better ways of characterizing bonds than describing them as covalent or ionic.

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