

London Dispersion in Molecular Chemistry^[1]

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The *Gecko* can walk up a glass window because of the adhesion in hydrophobic setae on its toes that convey van der Waals (vdW) interactions with the surface.^[2] The attractive part of vdW-interactions is an electron correlation effect referred to as *London dispersion*. Its role in the formation of condensed matter has been known since van der Waals^[3] and London^[4] who related dispersion to polarizability. London dispersion has been underappreciated in molecular chemistry as a key element of structural stability, chemical reactivity, and catalysis. This negligence is due to the notion that dispersion is considered weak, which is only true for *one* pair of interacting atoms. For increasingly larger structures, the overall dispersion contribution grows rapidly and can amount to tens of kcal mol⁻¹. This presentation shows selected examples that emphasize the importance of inter- and intramolecular dispersion for molecules consisting mostly of first row atoms.^[5] We note the synergy of experiment and theory that now has reached a stage where dispersion effects can be examined in fine detail. This forces us to re-consider our perception of steric hindrance and stereoelectronic effects, and even the transferability of chemical bond parameters from one molecule to another, both in structural chemistry^[6] and in catalysis.^[7]



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