
GEOMETRIC PROPERTIES OF THE WATER AND SALT MOLECULES

Gurzu Rareş^{1,*}

¹*Universitatea Ovidius din Constanța, Romania*

ABSTRACT

This presentation shows the geometric symmetries of two well-known molecules, the water one, specifically snow, and table salt. These two molecules form interesting, but not so complex structures, which are worth analyzing. Most properties are given by the angle at which the chemical bounds are formed, i.e. the angle between the hydrogen molecules and the water is roughly 120° which generates a hexagon-like structure, while the sodium and chlorine bond form, in a larger group, a 90° angle. The dihedral group will be the main tool for the analysis of those respective geometric formations.

Keywords Dihedral, Geometry, Symmetry, Atomic Bonds, Permutations

References

- [1] KEITH Conrad. Dihedral groups ii. Internet Online Book, pages 3–6, 2009.
- [2] Raúl Fuentes-Azcatl and Marcia C Barbosa. Sodium chloride, NaCl: New force field. The Journal of Physical Chemistry B, 120(9):2460–2470, 2016.
- [3] Israel Nathan Herstein. Topics in algebra. John Wiley Sons, 1991.
- [4] Serge Lang. Algebra, volume 211. Springer Science Business Media, 2012.
- [5] Biswajit Santra. Density-functional theory exchange-correlation functionals for hydrogen bonds in water. PhD thesis, Technische Universität Berlin Berlin, 2010.

*Corresponding Author's E-mail: gurzurares@yahoo.com