

VCD spectroscopy as a novel probe for chirality transfer in molecular interactions

Joanna Sadlej,

Faculty of Chemistry, Warsaw University, Pasteur Street 1, 02-093 Warsaw, Poland

The optical and magnetic spectroscopies, as well as diffraction techniques, are the principal methods for studying properties of molecules, biomolecules, and biopolymers which, in vast majority, are chiral. This is the reason why the optical spectroscopy methods, based on natural chiroptical phenomena, have become so important and their renaissance in the last decade is noticed. Vibrational Circular Dichroism (VCD) spectroscopy is one of such chiroptical techniques that sheds new light on many important phenomena studied intensively. In this lecture we provide an overview of recent theoretical predictions and innovative VCD observations of chirality transfer (called by other authors – “induced chirality”) from a chiral molecule to an achiral one as a result of hydrogen bond interactions between them. Calculations of the VCD spectra for conformational studies and intermolecular interactions effects are a promising and growing field. We search for answers as to whether we can obtain further information about intermolecular interactions using the VCD technique. In our opinion this technique has opened new horizons for both understanding and monitoring intermolecular actions and applicability of relatively new and powerful physicochemical method.