

Inauguration Ceremony of FT vibrational and VCD spectrometers

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Sixth decade of vibrational spectroscopy in Slovenia

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Vibrational circular dichroism – new dimension of vibrational spectroscopy

The talk will start with the basic characterization of vibrational circular dichroism (VCD) and description how molecular structure is encoded in VCD spectra and what is its position among other methods dealing with the molecular structure. The part on methodology of the VCD measurement will also include experimental peculiarities as well as advantages and disadvantages of this technique and the range of acceptable conditions which is more specific and narrower than in conventional spectroscopies will be discussed.

Applications of VCD will be summarized which include structural studies of chiral molecules regardless of their size, from relatively simple organic molecules, through rigid alkaloids up to biomolecules, including large biopolymers such as polypeptides, proteins and nucleic acids. VCD applications include the simple use of VCD spectra to resolve opposite enantiomers, determination of enantiomeric excess, determination of absolute configuration of rigid organic molecules, including pharmaceuticals and conformational analysis of flexible molecules. In recent years VCD was used as a tool to follow chiral supramolecular systems and chiral recognition. Some application of VCD on bioinspired interactions as protein-lipids and others will be demonstrated.