

## Hydrogen Bonding from Perspective of Overtones and Combination Modes: Near-Infrared Spectroscopic Study

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### Autorzy

Mirosław A. Czarnecki

Yusuke Morisawa

Yukihiro Ozaki

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### Streszczenie

This chapter is dedicated to investigation of hydrogen bonding and various manifestations of this phenomenon by near-infrared (NIR) spectroscopy. This technique offers some benefits for hydrogen bonding studies, as compared with the IR spectroscopy. The free and weakly bonded OH or NH groups are more pronounced in the NIR spectra as compared with bonded groups, while in the IR spectra an opposite situation occurs. Hence, many aspects of the hydrogen bonding are better seen in the NIR spectra. However, a complementary application of the IR and NIR spectroscopy guided by theoretical calculations provides more comprehensive information on the hydrogen bonding, anharmonicity, vibrational potential, and dipole moments. In this chapter are shown examples of application of NIR spectroscopy for investigation of molecular structure and interactions in water, 1-alcohols, acetonitriles, alcohol/alcohol and alcohol/alkanes binary mixtures, poly(3-hydroxybutyrate), 2,6-dihalogenophenols, and pyrrole.

### Słowa kluczowe

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