BIOMOLECULES IN THE GAS PHASE: THE ELECTRONIC SPECTRUM OF MELATONIN [a]

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Melatonin (N-acetyl-5-methoxytryptamine) is a neural hormone involved in the biochemical regulation of the circadian rhythms and other functions throughout the body. The structure is an indole derivative with a flexible peptide-like side chain, which results in many conformational structures. In this work, high resolution $S_1 \leftarrow S_0$ fluorescence excitation spectra of melatonin bands have been recorded. The two observed bands of melatonin display multiple central branches, indicating two overlapping spectra. We use both the experimentally derived rotational constants and theoretical calculations to assign the conformational structures and to gain information about the nature of the molecule. The relevance of these findings will be further discussed.

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