

The Features of Infrared Absorption of the Protein Molecules in the Living System

PANG Xiao-Feng

Institute of High-Energy Electronics, University of Electronic Science and Technology of China, Chengdu 610054, China
International Center for Material Physics, The Chinese Academy of Sciences, Shenyang 110015, China

(Received: 2000-3-9; Revised: 2000-6-27)

Abstract: We utilize a vibron-soliton model for amide-I vibrational quanta interacting with optical phonons to study the feature of infrared absorption of the protein molecules with finite temperature. The self-trapping of amide-I vibrational quantum results in red shift of the main peak and largely anomalous band to occur in the infrared absorption for the protein molecules. Utilizing the concise model of vibron and improved theory of color centers we have given theoretically the value of red shifts of the main peak and the intensity of anomalous band in infrared absorption, respectively, the latter reduces with increasing temperature which is consistent with the experimental result.

PACS: 87.15.By, 87.10.Tc, 65.90.Ti, 78.30.Jw

Key words: soliton, protein molecules, infrared absorption

[\[Full text: PDF\]](#)

Close