



Theoretical analysis of structure and vibrational spectra

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Computational chemistry is used in a number of different ways. One particularly important way is to model a molecular system prior to synthesizing that molecule in the laboratory. A second use of computational chemistry is in understanding a problem more completely. There are some properties of a molecule that can be obtained computationally more easily than by experimental means. There are also insights into molecular bonding, which can be obtained from the results of computations that cannot be obtained from any experimental method. Present work highlights complete normal mode analysis, Phonon dispersion, potential energy distribution(PED) of some substituted polyacetylenes. Considering their potential applications in harmonic generation, amplitude and phase modulation, switching and other optical signal processing devices, nonlinear materials are chosen for study of geometry optimization, electrostatic potential, band gap, interpretation IR and Raman activity, natural bond orbital analysis (NBO) and HOMO-LUMO using density functional theory. 236 pp. Englisch.



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