

Abstract Submitted
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Temperature-dependent study of vibration and polymorphism of oligoacenes and their derivatives ZHONGQIAO REN, LAURIE MCNEIL, Department of Physics and Astronomy, University of North Carolina at Chapel Hill, Chapel Hill, North Carolina 27599-3255, USA, CHRISTIAN KLOC, Nanyang Technological University, School of Materials Sciences and Engineering, Singapore — Raman measurements have been performed on a series of oligoacenes and their derivatives (anthracene, tetracene, pentacene and diphenyl-anthracene, rubrene) in a wide temperature range (50-300K). It has been observed that different phases co-exist in several of these crystals depending on sample preparation and history, and that transitions between polymorphs can be observed as a function of temperature. Comparisons among crystals with similar molecular structure will be made to clarify the changes in the inter- and intra-molecular modes as the structure changes with temperature. Simulated calculations of the inter-molecular modes between multiple molecules, and the intra-molecular modes of the isolated molecules will also be presented.

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