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**Temperature Induced Structure Evolution of Regioregular Poly (3-hexylthiophene) in Dilute Solution and its Influence on Thin Film Morphology** CHARLES HAN, YE HUANG, HE CHENG, Joint Laboratory of Polymer Science and Materials, ICCAS, Beijing, China, JOINT LABORATORY OF POLYMER SCIENCE AND MATERIALS, ICCAS, BEIJING, CHINA TEAM — The structure evolution of regioregular Poly (3-hexylthiophene) (P3HT) in THF dilute solution, and its influence on thin film morphology were studied. A thermal treatment at high temperature effectively re-disperses P3HT micro-sized aggregates, and introduces two modes in DLS measurements. The structures of these 2 modes are identified, and the two structures of P3HT in dilute solution can greatly influence the morphology on subsequent thin films produced. Since the P3HT structures are carried into the film morphology, proper understanding and control of the structures in solution are important and can enhance electronic and opto-physical properties of the final devices.

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