Abstract Submitted
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Nucleation from Supercooled Liquid Crystal and Crystallization Reveled by the Fast Scanning Calorimeter[1] DONGSHAN ZHOU, WEI JIANG, CAO TENG, XIAOLIANG WANG, GI XUE, Nanjing University, CHRISTOPH SCHICK, University of Rostock — Homogenous nuclei free liquid crystal glass of 4-cyano-4'-octyloxy biphenyl-carbonitrile (8OCB) was obtained by fast cooling with a rate of 20000 K/s. The glass was then heated rapidly (20000 K/s) from far below the T_g to a temperature near its T_g and hold for varied time t_a. After that, the sample was once again quenched below its T_g. Finally, the sample was heated again to isotropic melt. We use evolution of the cold crystallization peak h_{cc} with the holding time during the last heating scan to investigate the nucleation and crystallization processes occurring in the holding process. The h_{cc} was found to increase at short t_a, indicating the increased number of nuclei; and decrease in the longer t_a, indicating the superposition of crystallization over the nucleation. Such technique shows potential for the study of nucleation kinetics in the condensed supercooled liquids.

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