

Abstract Submitted  
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**Structural Reorganization of Liquid Crystals Revealed by Fast Scanning Calorimeter<sup>1</sup>** DONGSHAN ZHOU, JING JIANG, XIAOLIANG WANG, GI XUE, Nanjing University — Liquid crystal glass of 4-Cyano-4'-octylbiphenyl is obtained by rapid cooling with rates over 2000 Kelvin per second (K/s) on the chip calorimeter. The glass can crystallize easily upon heated above its glass transition temperature. Depending on the prior cooling rate and annealing history thereafter, melting-structural reorganization-remelting behavior similar to that of semicrystalline polymer can be observed during subsequent heating. The complex melting behavior is attributed to the transformation of metastable crystal forms formed during annealing or heating induced cold crystallization. Increasing the heating rate ( $>15000$  K/s) can suppress the transformation and, additionally, enables us to capture the multiple N-I transition. This implies the coexistence of two different types of nematic states. To avoid above complex structural reorganization, one can anneal the sample at 260K for 2 seconds to get the stable crystal form.

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