

Supplementary Material

Supramolecular Self-Assembly Nature of a Novel Thermotropic Liquid Crystalline Polymer Containing No Conventional Mesogens

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A Operation details of the sequence determination in the process of 2D Φ_H phase formation (70~110 °C)

Step 1. Signs of cross-peaks in asynchronous spectra (corresponding to Fig. 6b in the article)

1707										-	-	-	
1712	-	-	-		-		-	-	+	-	-		
1731	-	-	+		+		+	+	+	-			
1741													
2841	+		-	-	-	-	-	-					
2870	-		-	-	-	-	-						
2898	-		+	-	+								
2910	-		+	-	+								
2930	-		+	-									
2940	-		+										
2956	-												
2985													
3041													
	3041	2985	2956	2940	2930	2910	2898	2870	2841	1741	1731	1712	1707

Step 2. Signs of cross-peaks in synchronous spectra (corresponding to Fig. 6a in the article)

1707											-	-	+
1712	-	-	+		+		+	+	+	+	-	-	
1731	+	+	-		-		-	-	-	-	+		
1741													
2841	-		+	+	+	+	+	+					
2870	-		+	+	+	+	+						
2898	-		+	+	+								
2910			+	+	+								
2930	-		+	+									
2940	-		+										
2956	-												
2985													
3041													
	3041	2985	2956	2940	2930	2910	2898	2870	2841	1741	1731	1712	1707

Step 3. The final results of multiplication on the signs of each cross-peak in synchronous and asynchronous spectra.

1707											+	+	-
1712	+	+	-		-		-	-	+	+	+		
1731	-	-	-		-		-	-	-	-			
1741													
2841	-		-	-	-	-	-	-					
2870	+		-	-	-	-	-						
2898	+		+	-	+								
2910	+		+	-	+								
2930	+		+	-									
2940	+		+										
2956	+												
2985													
3041													
	3041	2985	2956	2940	2930	2910	2898	2870	2841	1741	1731	1712	1707

- The sequence can be obtained according to the method introduced above as follows (→ means earlier than): 1731 cm^{-1} → 2841 cm^{-1} → 3041, 2985 cm^{-1} → 1712 cm^{-1} → 2870 cm^{-1} → 2956 cm^{-1} → 2930 cm^{-1} → 2898, 2910 cm^{-1} → 2940 cm^{-1} .

B Operation details of the sequence determination between symmetric and asymmetric stretching vibrations of saturated C-H in the preparation process of 2D Φ_H phase (35~65 °C)

Step 1. Signs of cross-peaks in asynchronous spectra (corresponding to Fig. 7b)

2841	+	+	+	+	
2870	+		+		
2910	+	-			
2930	+				
2956					
	2956	2930	2910	2870	2841

Step 2. Signs of cross-peaks in synchronous spectra (corresponding to Fig. 7a)

2841	+	+	+	+	
2870	+		+		
2910	+	+			
2930	+				
2956					
	2956	2930	2910	2870	2841

Step 3. The final results of multiplication on the signs of each cross-peak in synchronous and asynchronous spectra.

2841	+	+	+	+	
2870	+		+		
2910	+	-			
2930	+				
2956					
	2956	2930	2910	2870	2841

- The sequence can be obtained according to the method introduced above as follows (\rightarrow means earlier than): $2956\text{ cm}^{-1} \rightarrow 2910\text{ cm}^{-1} \rightarrow 2870\text{ cm}^{-1}$, $2930\text{ cm}^{-1} \rightarrow 2841\text{ cm}^{-1}$.