

**Liquid-crystal periodic zigzags from geometrical and surface-anchoring-induced confinement:
Origin and internal structure from mesoscopic scale to molecular level**

D . K ,^{1,2} J^M,³ , H K^M,¹ M. C. C ,⁴ J K^M,³ O^M t ,⁵ . r K^M,³ r ,⁵
M K^M,^{6,7}

$\frac{m}{r} s$ tr t b r s r s r , r r r $\frac{m}{r}$ t
 L DMLB $\frac{m}{r}$ s r f r tr $\frac{m}{r}$ r s
 EMs , LC $\frac{m}{s}$ r fr tr $\frac{m}{r}$ t , -
 tr , t t 5 r f Pt, $\frac{m}{r}$ s . FEI
 r FE- EM t N t N f C t r NNFC K-
 r A I st b t f T KAI T .

III. RESULTS

$\frac{m}{r}$ r -s , , r st 1,
 4' - 5,5,6,6,7,7,8,8,9,9,10,10,11,11,12,12,12-
 -
 t s r r t t l t r s r r $\frac{m}{r}$ F .
 1 F. s. 1 $\frac{m}{r}$ 2 t s t r l t r
 4,16,17. $\frac{m}{r}$ t f s tr s t $\frac{m}{r}$ f , r st 1
 $\frac{m}{r}$ ts tr s t , , fr l $\frac{m}{r}$ s $\frac{m}{r}$ t
 $\frac{m}{s}$ t - $\frac{m}{s}$ = 185 C, t fr l t $\frac{m}{r}$ t t
 $\frac{m}{s}$ ft r st , , s t = 111 C. $\frac{m}{r}$ s t $\frac{m}{r}$ LC
 str tr f , $\frac{m}{r}$ r st 1 s st $\frac{m}{r}$ D 1 + -
 l k r $\frac{m}{r}$ 1 + - t , , s l t t s s $\frac{m}{r}$
 r
 f s . r r r t t . D s s r r r r r r r r r r
 r t r . s $\frac{m}{r}$ t $\frac{m}{r}$ D t t r s F . 3 s $\frac{m}{r}$ s -
 $\frac{m}{r}$ s r $\frac{m}{r}$ s t $\frac{m}{r}$ t $\frac{m}{r}$ t = 10 $\frac{m}{r}$
 $\frac{m}{r}$ = 6.0 $\frac{m}{r}$ 1. $\frac{m}{r}$ - s $\frac{m}{r}$ str tr r s l $\frac{m}{r}$ t t
 $\frac{m}{s}$ f r , , s t s r r , , s
 str t $\frac{m}{r}$ f r r r r r r r r r r r r r
 18,19. $\frac{m}{r}$ m r s r r t t s f , r st 1
 $\frac{m}{s}$ s $\frac{m}{r}$ r st . F . 3 , , s
 $\frac{m}{r}$ t 19. B s t s r r r r r r r r r r r
 $\frac{m}{s}$ s r $\frac{m}{r}$ t $\frac{m}{r}$ r , , s t $\frac{m}{r}$ st
 r s t f r l t r , , t f l t t
 r s t r t r . $\frac{m}{r}$ s t s r t t t t
 $\frac{m}{r}$ t f r r t r , , r s t r r r f
 $\frac{m}{r}$ = 6.02 $\frac{m}{r}$ = 7.20 $\frac{m}{r}$. A t , , t r f f s
 $\frac{m}{s}$ s s $\frac{m}{r}$ t , , 1 = 12.6 $\frac{m}{r}$,
 $\frac{m}{r}$ 2 = 15.3 $\frac{m}{r}$, 3 = 17.0 $\frac{m}{r}$, t str t s
 f r t t t t m r t r , , s . $\frac{m}{r}$ r r
 str tr $\frac{m}{r}$ f t , , s f $\frac{m}{r}$ r st $\frac{m}{r}$ 1 s
 s t s f r l t s t t r s , , r s , , t
 s ft r r . CE I 2 A r s , D , CA , A .
 As F . 3 , , r st 1 s st , , t t r $\frac{m}{r}$ π
 s t . , t r t t t t t m r s , ,
 t s $\frac{m}{r}$ f , r st 1 s ~ 3.52 $\frac{m}{r}$. Fr l t 1
 t $\frac{m}{r}$ s t t t s , , r s , ,
 f ~ 0.50 $\frac{m}{r}$ 2 s r t t t t f t
 r s , ~ 0.41 $\frac{m}{r}$. 3 t s / F3 3-400.8 t s / F3 . 64214F3 . 642

$10^4 \mu$, r t $\frac{m}{r}$ fr $\frac{m}{r}$ 3 t 100 μ . , , r
 s l r s r s 2 10 μ r s f r tr
 s t r s s t r r s . $\frac{m}{r}$ tr t
 $\frac{m}{r}$ r , , t $\frac{m}{r}$ s s t r r s r
 $\frac{m}{r}$ r , , t r s $\frac{m}{r}$ t r f $\frac{m}{r}$ -
 f r , , t t t r $\frac{m}{r}$ r - r , , -
 rt , f r r s s r t s t - t r
 $\frac{m}{r}$, t s r f s , t r $\frac{m}{r}$ - s s , r s
 t t r r t t r . $\frac{m}{r}$ - AF , D t
 r r r t s t F r r f t M FC-77, 3 M $\frac{m}{r}$
 t m r r r f t s s t r $\frac{m}{r}$ t LC
 r s r t t s r f . D r t s , , t
 $\frac{m}{r}$ s s t r r s r r , , t t t s t
 $\frac{m}{r}$ M t r FP82 H r s t m t t r r r t
 s t - s t r $\frac{m}{r}$ t r s t t r t r . 194.7 C t f -
 t t t m f l t r 1 t t , , t t
 2 C / . $\frac{m}{r}$ D $\frac{m}{r}$ s r $\frac{m}{r}$ t s r r m t t
 BL13 f t P r - 8 F . 5 t s $\frac{m}{r}$ t r l -
 tr $\frac{m}{r}$. A f . s f r f 1 μ s t m r
 $\frac{m}{r}$ f 11 μ s s . , , s r $\frac{m}{r}$ t
 $\frac{m}{r}$, , r $\frac{m}{r}$ t 100 μ r s , , -
 r s $\frac{m}{r}$ t r s t s . $\frac{m}{r}$ s - t - t t r s
 $\frac{m}{r}$ t $\frac{m}{r}$ s 165 μ , , t r t t f r 60 s t
 t - t s 2D r - , , t t r
 r r t , , Tr t , NJ .

T t s rf s, tt r s, ss, r s
t t r t r t AF , D t
r r t s t F, r M FC-77, 3 M st
t m r r f t s s t r t LC
rs n t t m s rf .Dr .t m ., t s
s t m t t r tr t s t -s tr tr -
s t t r tr t f t t r f t LC
t t s t t t ft ttr s m
r m s t s s F .1 , f t r t r
t r tr T r s t r str s m f LC r ,
s s t t , s t t t , r m t t
s m T s rf r f LC s r , rs
m t t s rf tt s s t rf s,
tr rs r t t s rf 5.3814 0 T D

D ~~st~~ r .
tt s | str tr , ff r . t r r -
t t_M . At A2, s t r r . ft _M . , t
00 s . s r , , , , , n t t
str r t . At A1 A3 t r r t t 9_M , t r -
s . s r t t t fA2, n t t r

T t r r r P t s t s
F. §. 2 , 4 . , 4 P. r s r , s t
r s t f f | s s t str t r.

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