Electronic Supplementary Material (ESI) for New Journal of Chemistry.

Supplementary material:

Effect of Configurational Isomerism and Polymorphism on Chalcone Fluorescent Properties

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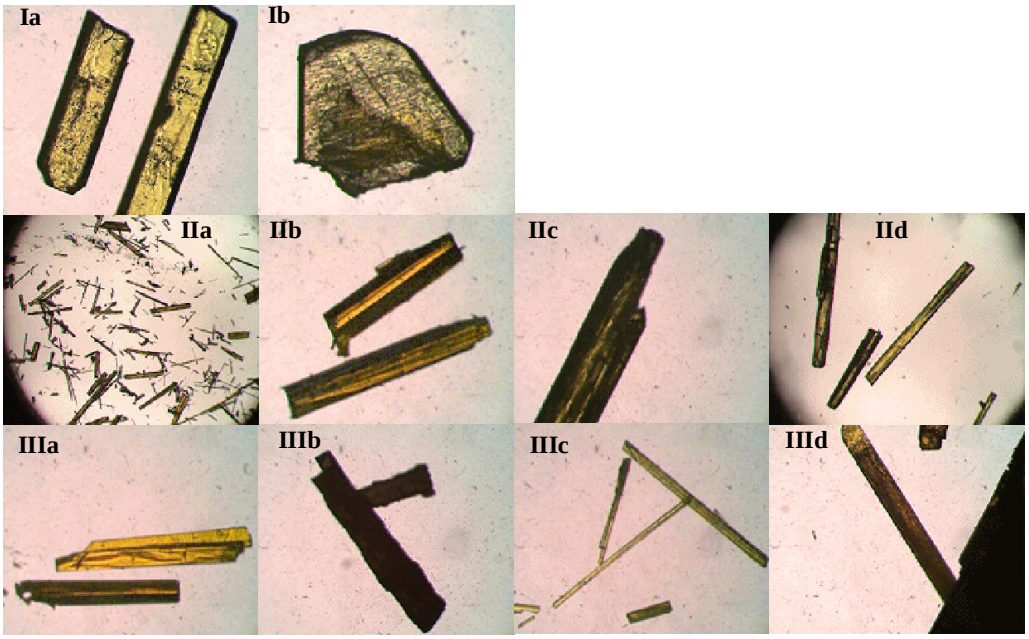

Figure S1. Microscopy graphs of all forms.

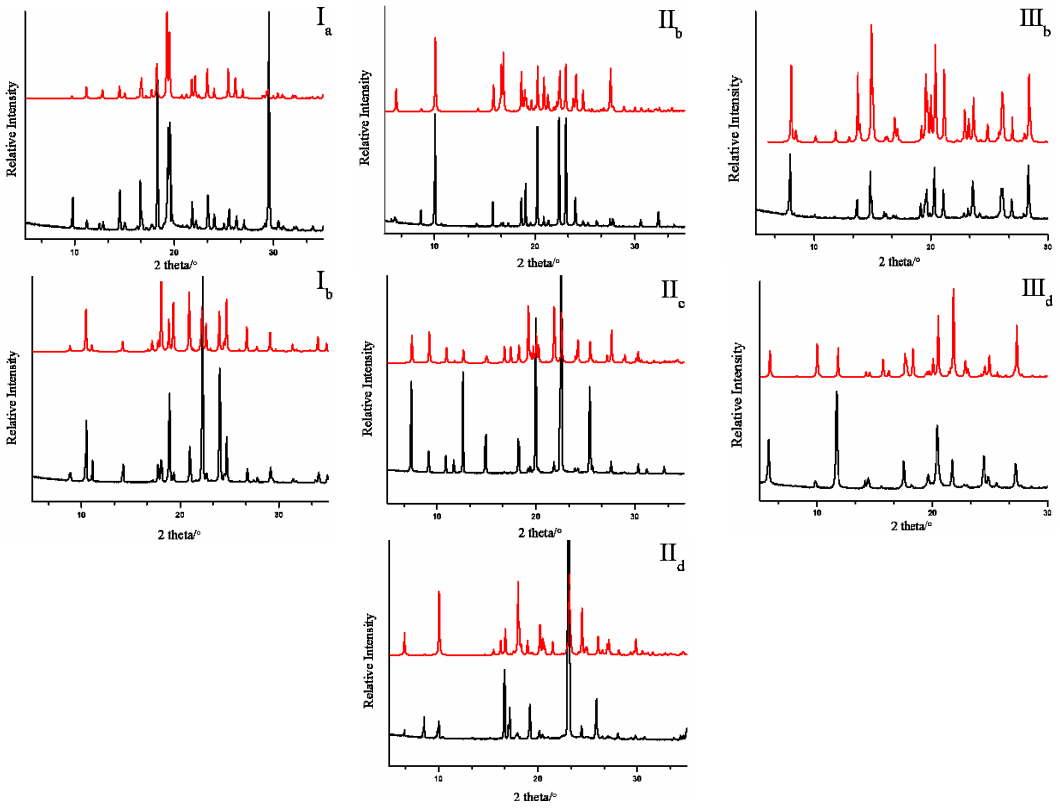

Figure S2. Comparing of PXRD experimental patterns (black) of crystals with simulated patterns

(red).

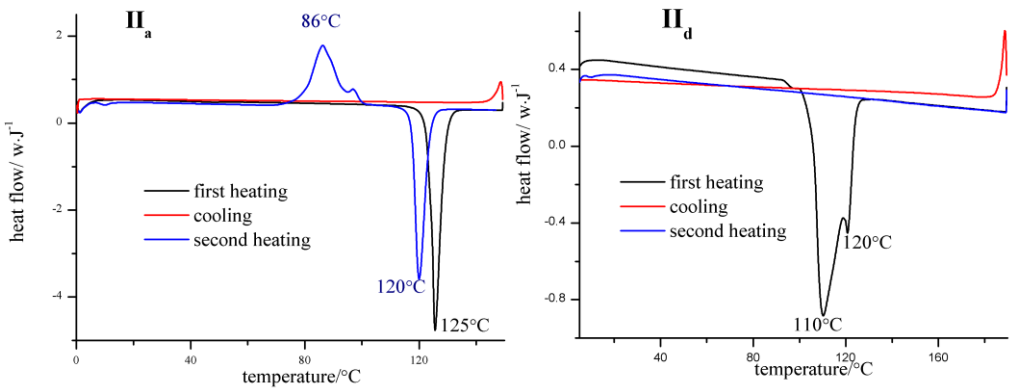

Figure S3. DSC measurement for **II_a** and **II_d** investigated by DSC-Q10 at 10 ℃ /min under liquid nitrogen (10 mL/min)

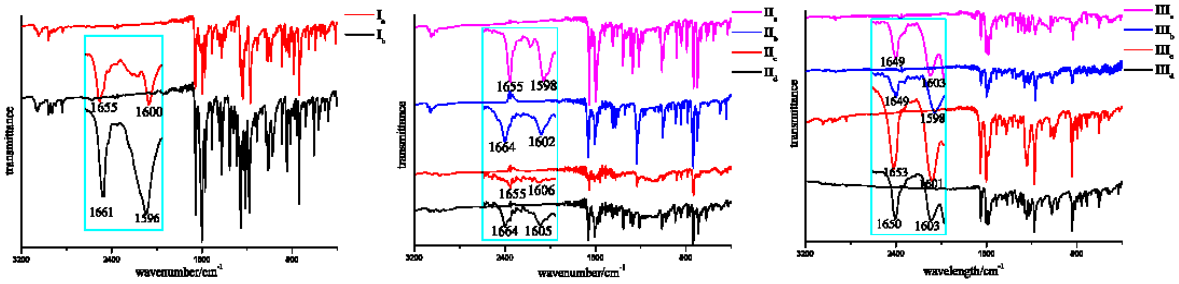

Figure S4. IR spectra of crystals.

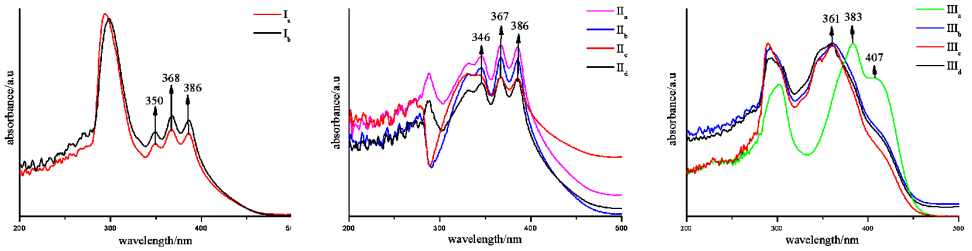

Figure S5. Absorption spectra of crystals in acetonitrile solvent.

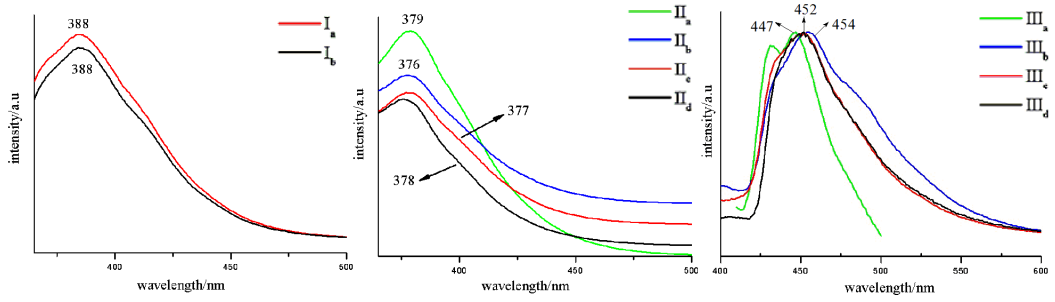

Figure S6. Fluorescence spectra (λex=365 nm) in cyclohexane solution for all forms.

Table S1. Total puckering Amplitude Q value and torsion angles in these forms.

Forms	$\mathbf{I_a}$	$\mathbf{I_b}$	$\mathbf{II_b}$	$\mathbf{II_c}$	$\mathbf{II_d}$	$\mathbf{III_b}$	**IIId**
Total puckering Amplitude Q for anthracene or pyrene rings/Å	0.219(8)	0.215(3)	0.142(5)	0.122(8)	0.122(4)	0.050(3)	0.098(5)
O-C(carbonyl)-C-C(ethenyl) torsion angles(°)	9.8(9)	44.5(4)	13.1(5)	-19.8(11)	-13.1(6)	12.8(5)	5.3(7)
C-C(=O)-C-C(ethenyl) torsion angles(°)	-169.2(6)	-137.5(3)	-167.4(3)	159.2(7)	167.1(3)	-165.4(3)	178.9(4)
C-O(methoxy group)-C-C torsion angles(°)	-1.2(8)	2.9(3)	/	/	/	-6.7(4)	-2.3(6)

Table S1. Total puckering Amplitude Q value and torsion angles in these forms.

Table S2. Melting point, enthalpy and decomposition temperature rang of all crystals.

Chalcone	**I**		**II**			
Form	$\mathbf{I_a}$	$\mathbf{I_b}$	$\mathbf{II_a}$	$\mathbf{II_b}$	$\mathbf{II_c}$	$\mathbf{II_d}$
Melting point /℃	139	167	125	149	147	120,125
Enthalpy/J·g^{-1}	63.16	87.55	63.86	73.58	39.12	52.19
Decomposition temperature/℃	250-380	230-340	230-350	200-300	200-300	230-350

Chalcone	**III**			
Form	$\mathbf{III_a}$	$\mathbf{III_b}$	$\mathbf{III_c}$	$\mathbf{III_d}$
melting point /℃	147	154	162	150
Enthalpy/J·g^{-1}	64.85	66.67	40.83	58.55
Decomposition temperature/℃	260-370	250-380	320-420	270-380

Table S3. The maximum absorption and emission peak of all solids.

Forms	$\mathbf{I_a}$	$\mathbf{I_b}$	$\mathbf{II_a}$	$\mathbf{II_b}$	$\mathbf{II_c}$	$\mathbf{II_d}$	$\mathbf{III_a}$	$\mathbf{III_b}$	$\mathbf{III_c}$	**IIId**
λ_{max}^{ab}/nm	447	433	485	453	443	455	638	676	570	568
λ_{max}^{em}/nm	495	/	545	/	/	501, 526	/	577, 603	/	583