

## Supporting Information

# Tuning Ferroelectric Phase Transition of PVDF by Uniaxially Stretching Crosslinked PVDF Films with CF=CH Bonds

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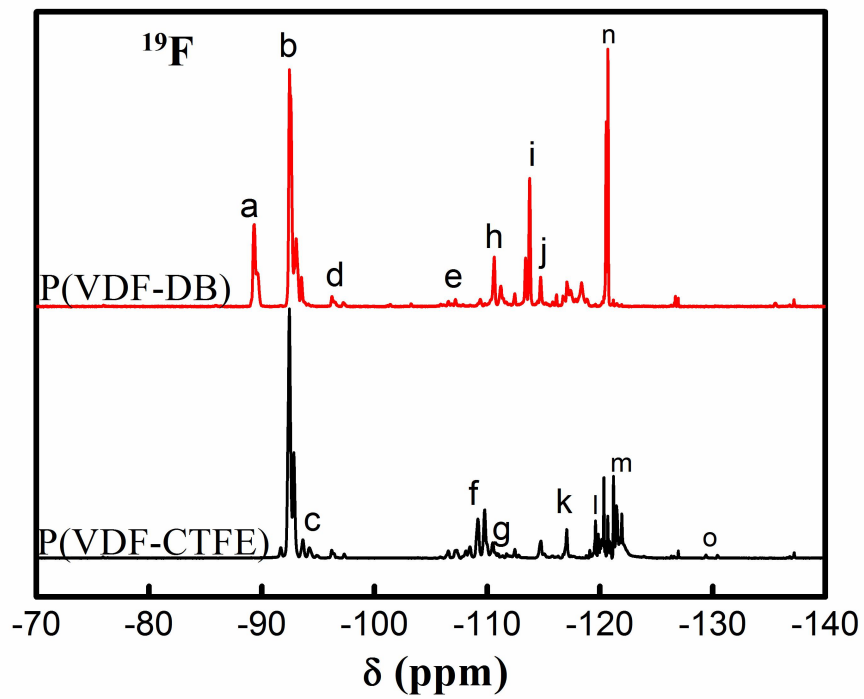
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Table S1. <sup>19</sup>F NMR assignment of P(VDF-CTFE) and P(VDF-DB)

peak	sequence	Chemical Shift (ppm)
a	-CF=CHCF <sub>2</sub> CH <sub>2</sub> CF <sub>2</sub> -	-89.2
b	-CF <sub>2</sub> CH <sub>2</sub> CF <sub>2</sub> CH <sub>2</sub> CF <sub>2</sub> -	-92.3
c	-CFCICH <sub>2</sub> CF <sub>2</sub> CH <sub>2</sub> CF <sub>2</sub> -	-93.16 to -93.67
d	-CH <sub>2</sub> CH <sub>2</sub> CF <sub>2</sub> CH <sub>2</sub> CF <sub>2</sub> -	-94.26 to -97.31
e	-CF <sub>2</sub> CFCICF <sub>2</sub> CFCICF <sub>2</sub> -	-106.5 to -107.82
f	-CF <sub>2</sub> CH <sub>2</sub> CF <sub>2</sub> CF <sub>2</sub> CFCI-	-108.0 to -109.34
g	-CF <sub>2</sub> CFCICF <sub>2</sub> CFCI-CH <sub>2</sub> -	-109.34 to -113.10
h	-CF <sub>2</sub> CFCICF <sub>2</sub> CF=CH-	-110.1 to -111.6
i	-CF <sub>2</sub> CF <sub>2</sub> CF=CHCF <sub>2</sub> -, -CF <sub>2</sub> CH <sub>2</sub> CF <sub>2</sub> CF <sub>2</sub> CF=CH-	-113.4 to -113.7
j	-CF <sub>2</sub> CH <sub>2</sub> CF <sub>2</sub> CF <sub>2</sub> CH <sub>2</sub> -	-114.7
k	-CH <sub>2</sub> CF <sub>2</sub> CF <sub>2</sub> CH <sub>2</sub> CH <sub>2</sub> -	-116.6 to -118.8
l	-CH <sub>2</sub> CF <sub>2</sub> CF <sub>2</sub> CFCI-CH <sub>2</sub> -	-118.25 to -119.98
m	-CF <sub>2</sub> CF <sub>2</sub> CFCI-CH <sub>2</sub> CF <sub>2</sub> -	-120.35 to -123.32
n	-CH <sub>2</sub> CF <sub>2</sub> CF <sub>2</sub> CF=CH-	-120.0 to -120.8
o	-CF <sub>2</sub> CH <sub>2</sub> CFCICF <sub>2</sub> CH <sub>2</sub> -	-129.46 to -130.53

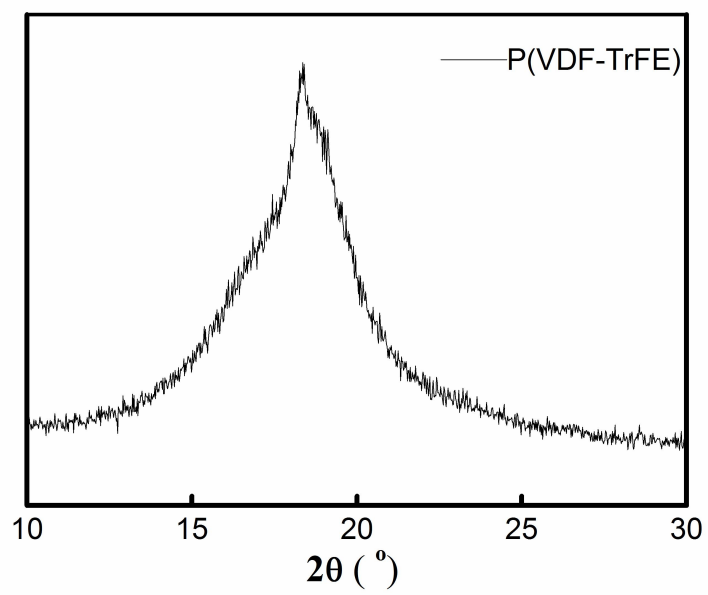
Table S2. Peak area of stretched-P(VDF-DB) from temperature-dependent dielectric spectroscopy

Sample	Peak area (%)	
	RFE	FE
P(VDF-DB)-6S	9.3	91.7
P(VDF-DB)-9S	19.2	80.8
P(VDF-DB)-12S	78.1	21.9
P(VDF-DB)-20S	100	-

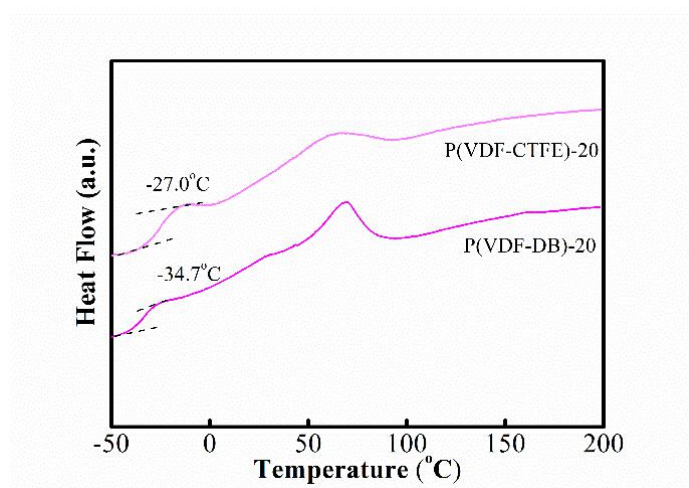


**Fig. S1.**  $^{19}\text{F}$  NMR of P(VDF-CTFE) and P(VDF-DB) bearing 80 mol% VDF

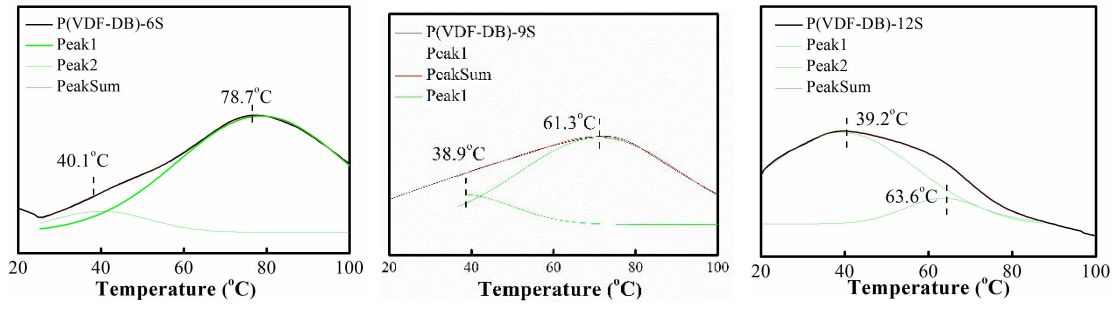




**Fig. S2.** XRD of P(VDF-TrFE) (80/20 mol%)



**Fig. S3.** DSC curves of P(VDF-CTFE) with various VDF content



**Fig. S4.** permittivity depending on temperature of stretched-P(VDF-DB) with 6 mol%,

9 mol%, 12 mol% and 20 mol% DB content



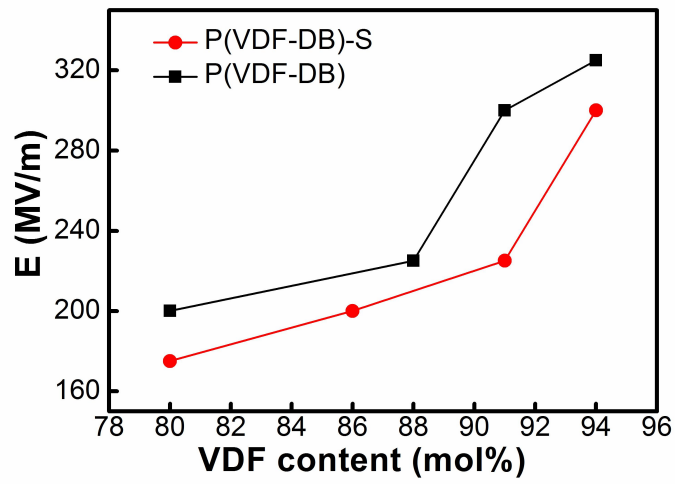
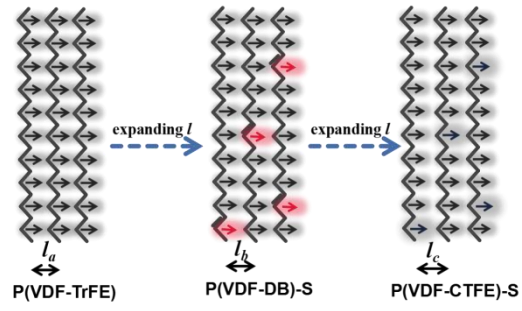


Fig. S5. Phase transition field of P(VDF-CTFE) and P(VDF-DB).



**Schema. S1.** Chain distance of stretched-PVDF, stretched-P(VDF-CTFE) and stretched-P(VDF-DB) ( $l_a=4.53$  nm,  $l_b=4.77$  nm,  $l_c=4.97$  nm, VDF= 80 mol%)