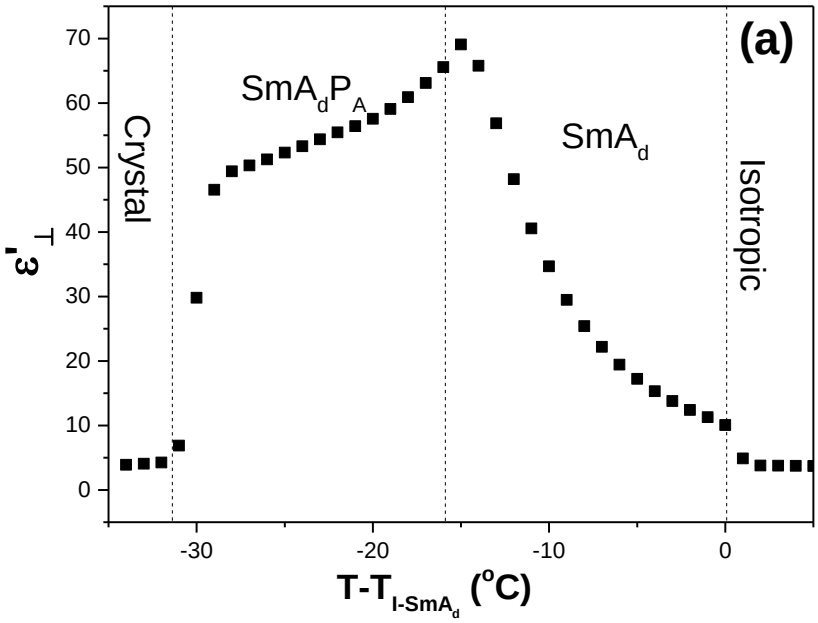
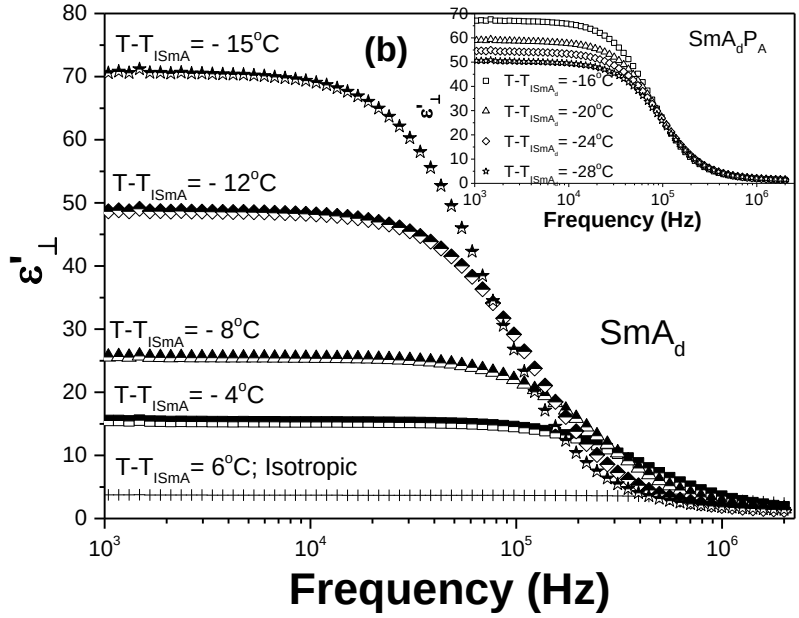
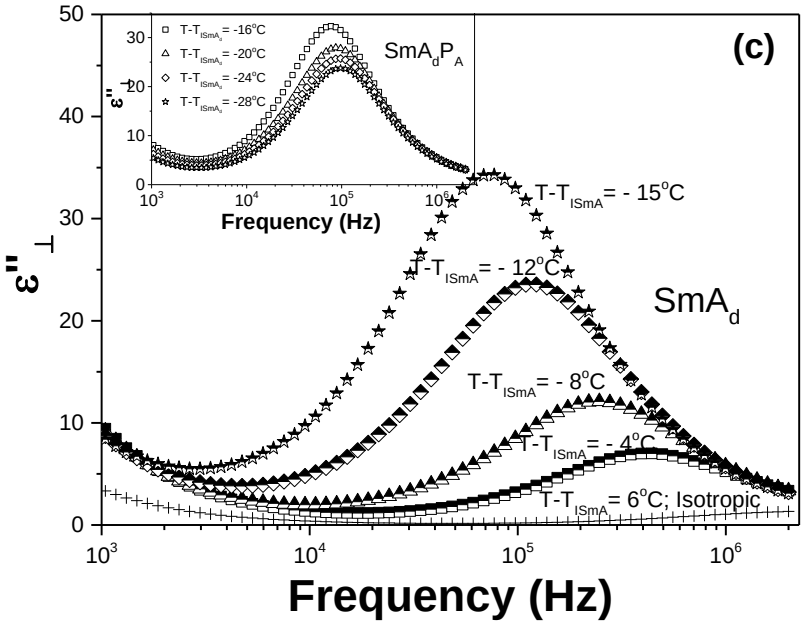

(a)
Crystal
SmA$_d$P$_A$
SmA$_d$
Isotropic
$\varepsilon'_\perp$
T-T$_{I\text{-}SmA_d}$ (^{o}C)


(b)
T-T$_{ISmA}$= - 15°C
T-T$_{ISmA}$= - 12°C
T-T$_{ISmA}$= - 8°C
T-T$_{ISmA}$= - 4°C
T-T$_{ISmA}$= 6°C; Isotropic
SmA$_d$
SmA$_d$P$_A$
T-T$_{ISmA_d}$= -16°C
T-T$_{ISmA_d}$= -20°C
T-T$_{ISmA_d}$= -24°C
T-T$_{ISmA_d}$= -28°C
$\varepsilon'_\perp$
Frequency (Hz)



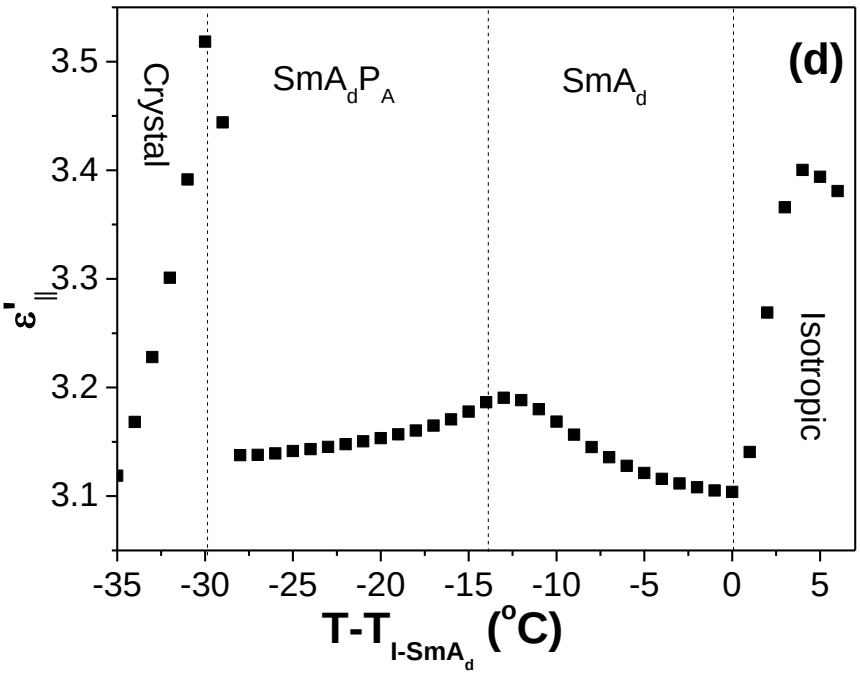


Fig. 13 The real part of perpendicular component of dielectric permittivity $\varepsilon'_{\perp}$ as a function of (a) temperature at 10 kHz in the various phases (b) frequency at various temperatures in the SmA_d phase (inset shows data in the SmA_dP_A phase), (c) The imaginary part of dielectric permittivity $\varepsilon''_{\perp}$ as a function of frequency at various temperatures in the SmA_d phase (inset

shows data in the SmA_dP_A phase). (d) The real part of the parallel component of dielectric permittivity $\varepsilon'_{||}$ as a function of temperature at 10 kHz in the various phases.