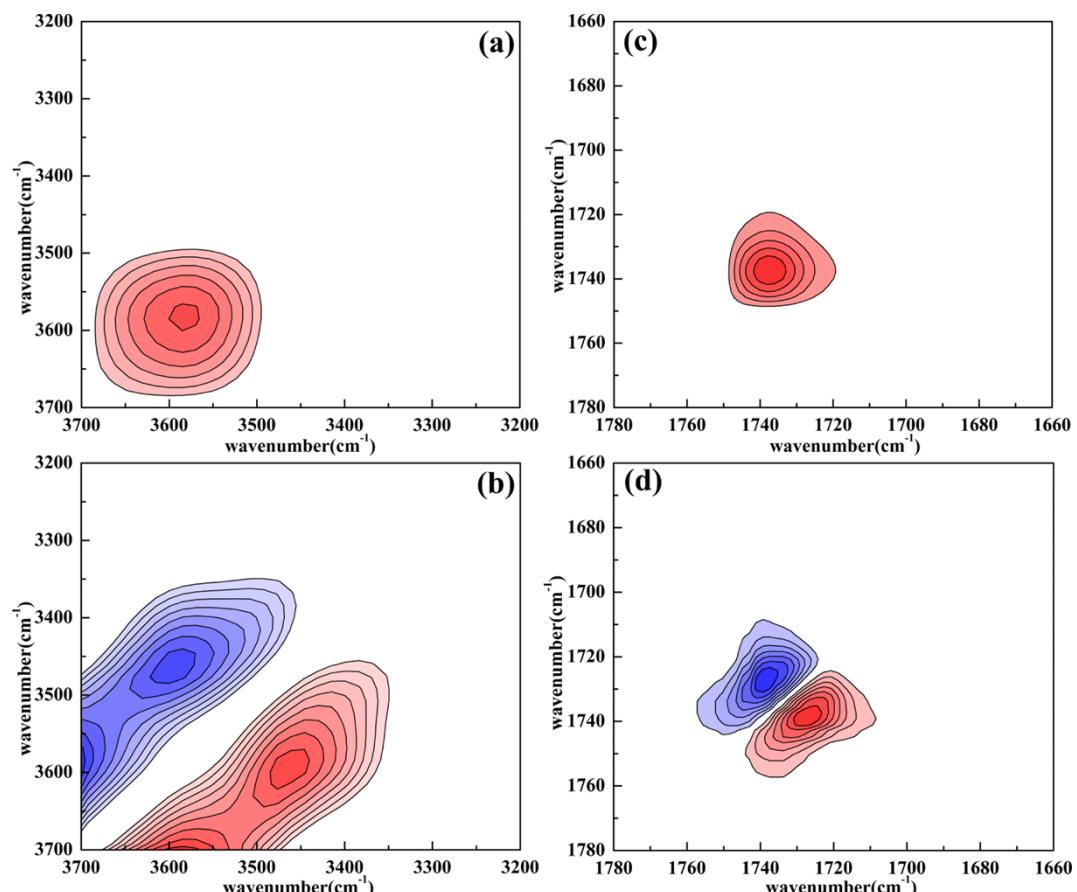
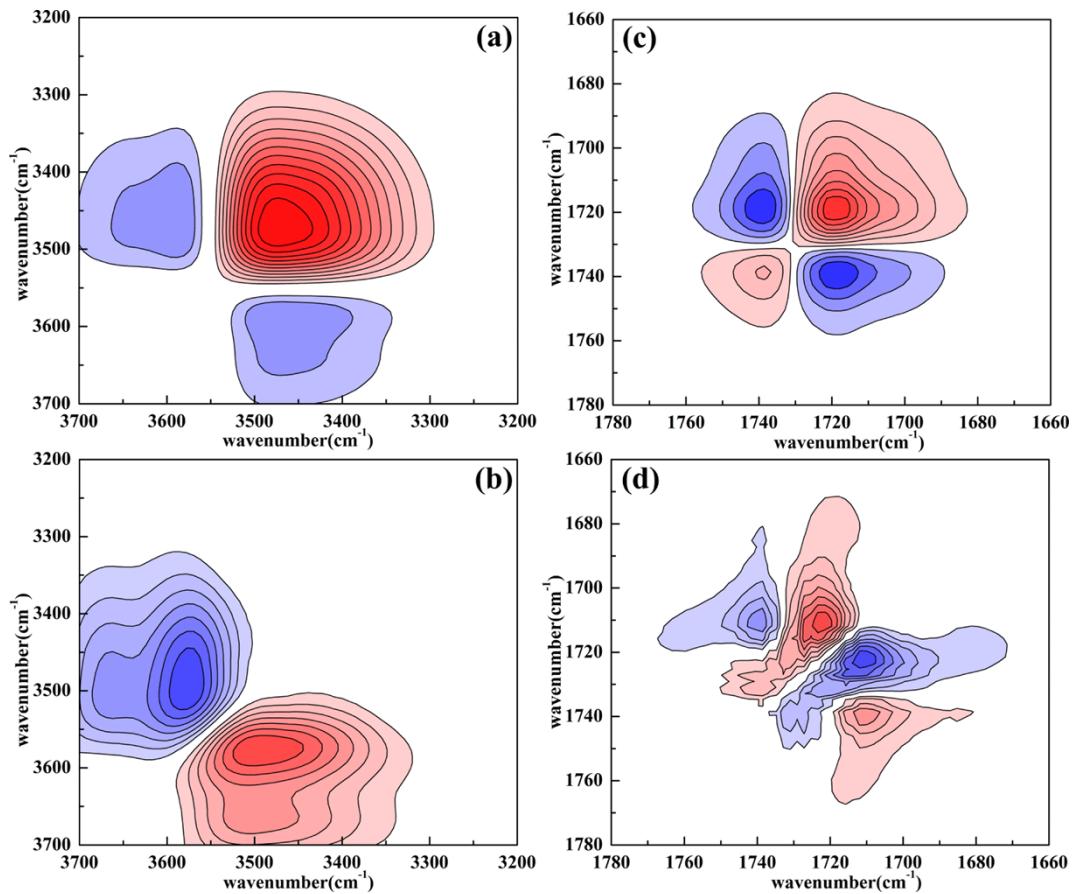


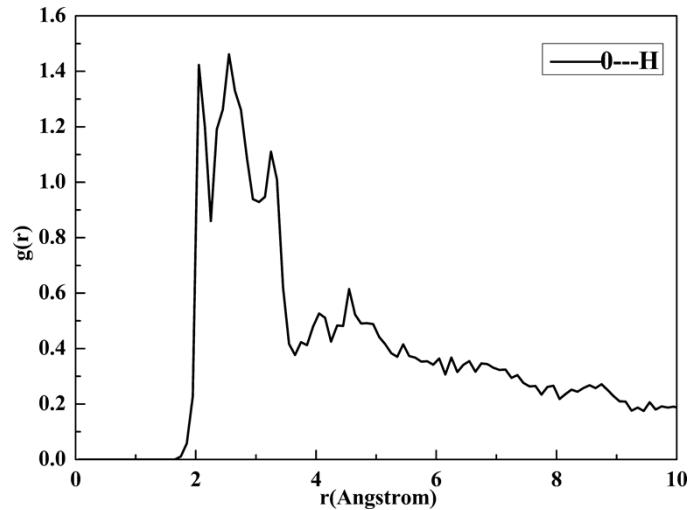
## Supporting information



**Figure 1-S.** 2D IR correlation spectra of PVAO-6.25 phr obtained from 20 to 120 °C:  
(a) synchronous map of 3700–3200  $\text{cm}^{-1}$ , (b) asynchronous map of 3700–3200  $\text{cm}^{-1}$ ,  
(c) synchronous map of 1780–1660  $\text{cm}^{-1}$  and (d) asynchronous map of 1780–1660  $\text{cm}^{-1}$



**Figure 2-S.** 2D IR correlation spectra of PVAO-50 phr obtained from 20 to 120 °C:  
 (a) synchronous map of 3700-3200  $\text{cm}^{-1}$ , (b) asynchronous map of 3700-3200  $\text{cm}^{-1}$ ,  
 (c) synchronous map of 1780-1660  $\text{cm}^{-1}$  and (d) asynchronous map of 1780-1660  $\text{cm}^{-1}$ .



**Figure 3-S.** Pair correlation function for H (AO-70) and O (PVAc, AO-70) in

PVAO-25 phr.