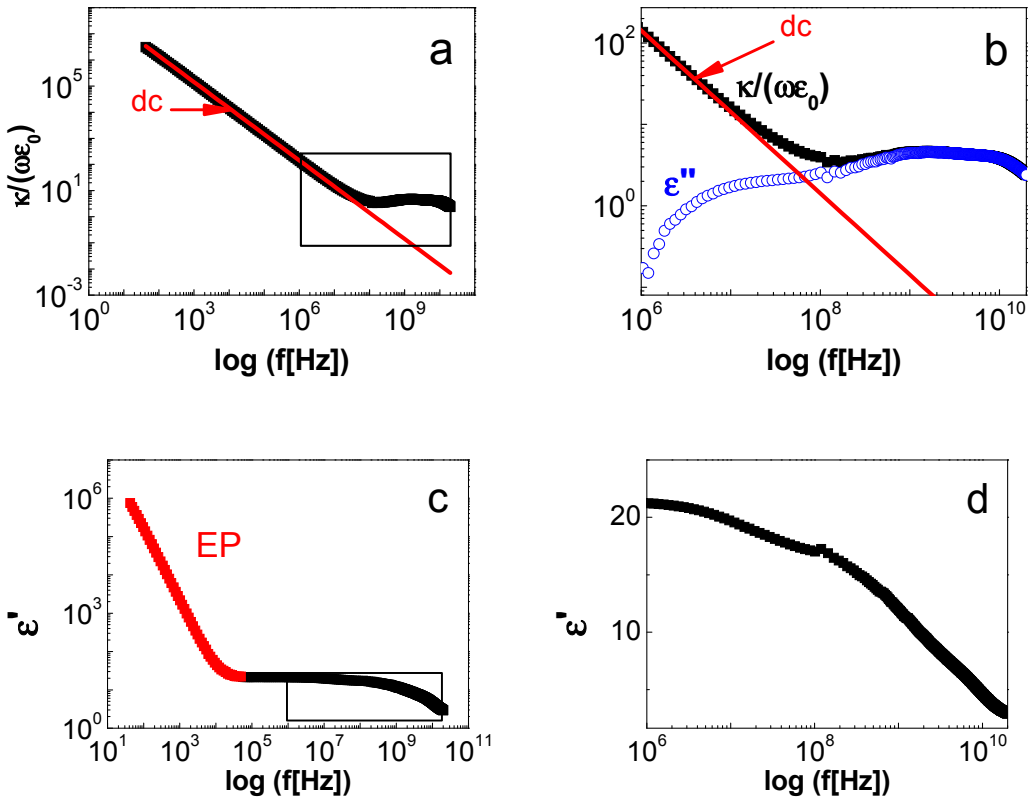

Fig. a and Fig. c show the original spectra of total dielectric loss and permittivity from 40Hz to 20GHz, respectively. In Fig. a, the red line is the fit of the dc conductivity. In Fig. c, the red colored data is caused by the electrode polarization (EP). Fig. b shows the amplification of the data in the rectangular area of Fig. a and the subtraction process of dc conductivity contribution from the total dielectric loss, the blue colored data is the dielectric loss data of the sample. Fig. d shows the amplification of the data in the rectangular area of Fig. c.

The dc conductivity contribution shown in Fig. a and the EP shown in Figure c are both caused by the electrical properties of the sample-electrode interface. In our work, we just pay attention to the dielectric relaxation process rather the process relative to dc conductivity contribution or EP, thus, we just show the dielectric relaxation spectra in the frequency range of 1MHz to 20GHz in Fig. 3.