



Supporting Information

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Fast Chemo-Responsive Shape Memory of Stretchable
Polymer Nanocomposite Aerogels Fabricated by One-Step
Method

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Changchun Wang ^{a,*}, Meiqing Wang ^b, Sanjiu Ying ^b, Jianping Gu ^a

1. Fourier transform infrared (FTIR) spectrum

The aerogels with different GO loadings dried at 30°C in a vacuum oven for 12h were characterized by FTIR (Nicolet IS10, Thermo Fisher Scientific) in the range of 400-4000 cm^{-1} in transmittance mode and the resolution is 4 cm^{-1} .

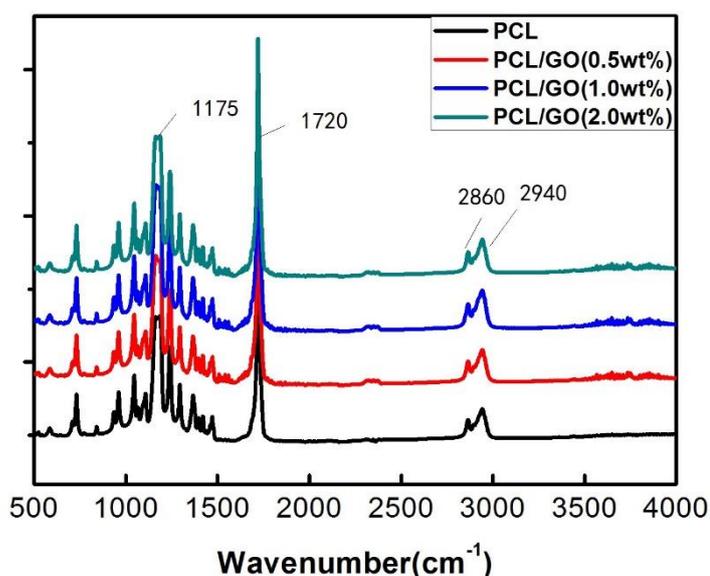


Figure S1 FTIR spectra of PCL and PCL/GO aerogels

Figure S1 shows the FTIR spectra of PCL, PCL/GO aerogels. There are four characteristic absorption peaks in curves. The 1720 cm^{-1} is the stretching mode of $-\text{C}=\text{O}$, 2860 cm^{-1} and 2940 cm^{-1} are the stretching mode of $-\text{CH}_2-$ and the 1175 is stretching mode of $-\text{C}-\text{O}-\text{C}-$. In theory, the interaction between GO and PCL chains will affect the resonant frequency of $-\text{C}=\text{O}$ or

-C-O-C-. The interaction between GO and PCL chains is not strong enough to show up in FTIR curves because of the low GO loading.

2. DSC of aerogels

A small amount of each sample (about 5mg) was weighted and tested at a heating/cooling rate of 10°C/min from -50°C to 80°C. As shown in figure S2, The glass transition temperature is about -30°C.

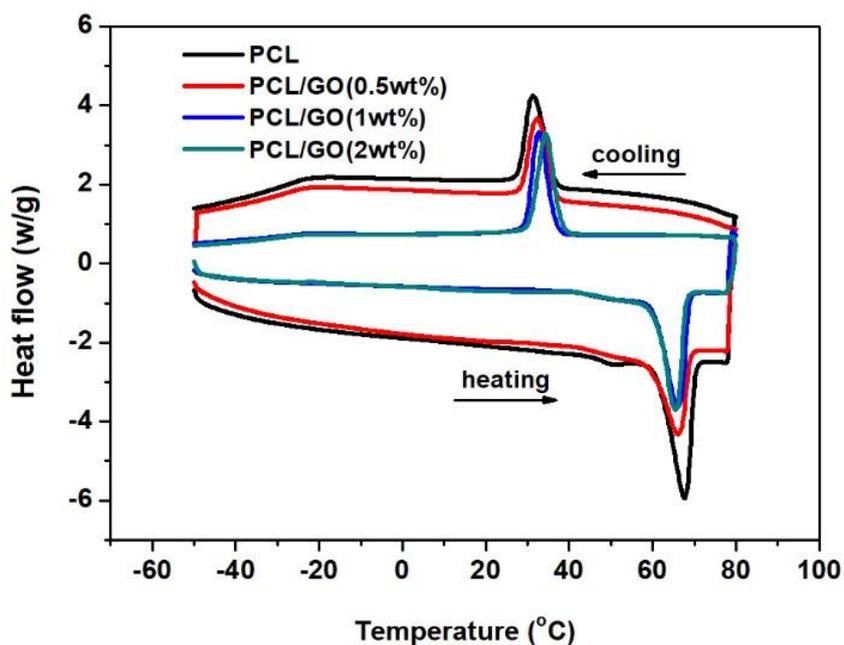


Figure S2 DSC of PCL and PCL/GO aerogels.

3. The video of recovery process of the spiral aerogel and deformed aerogel stripe in EA.