Electronic Supplementary Material (ESI) for Materials Chemistry Frontiers.

Support Information

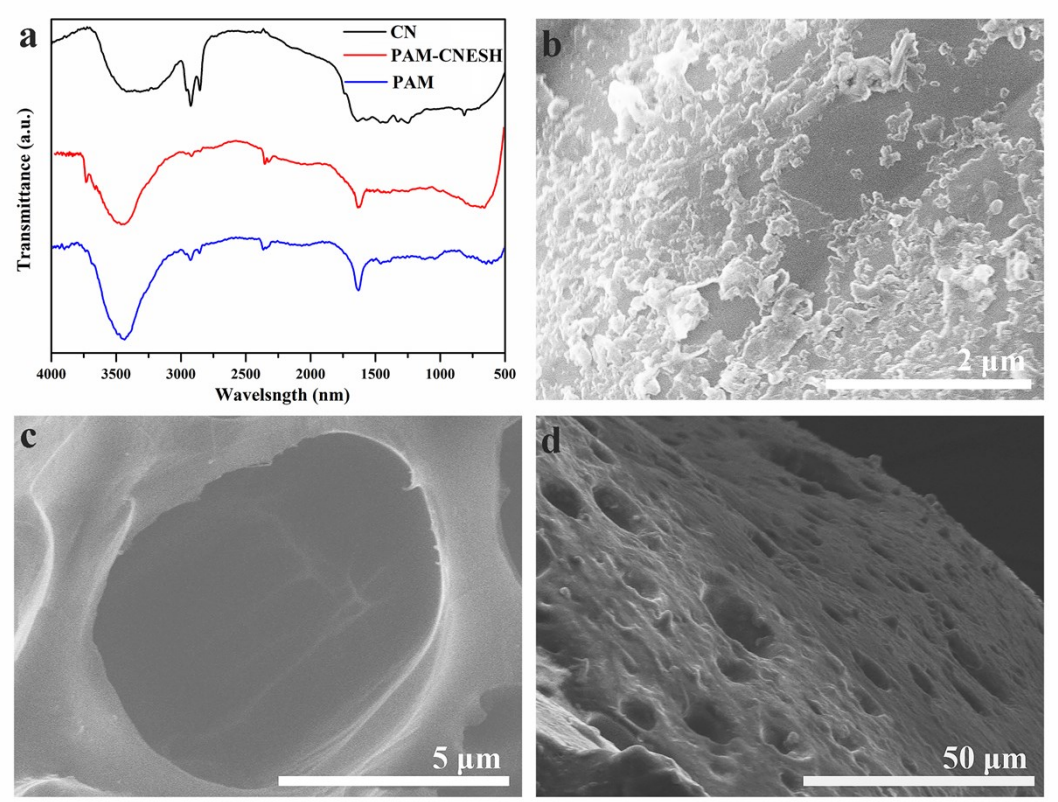
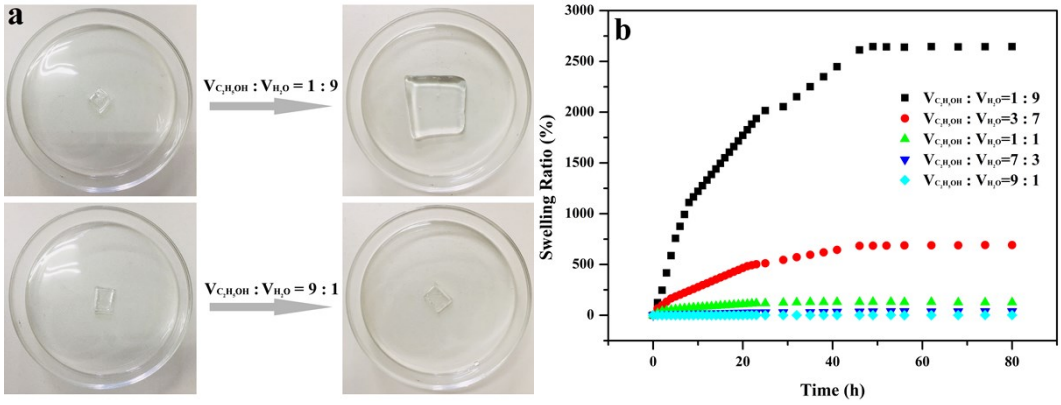


Fig. S1. Structure and morphology characterization for PAM-CN ESH. (a) FTIR spectra of as-prepared CN, PAM hydrogel and PAM-CN ESH. (b) SEM image for before chemical exfoliated CN. (c) SEM image for PAM-CN ESH swelling in water. (d) SEM image for PAM hydrogel.


a
$V_{C_2H_5OH} : V_{H_2O} = 1 : 9$
$V_{C_2H_5OH} : V_{H_2O} = 9 : 1$
b
Swelling Ratio (%)
Time (h)
$V_{C_2H_5OH} : V_{H_2O}$=1 : 9
$V_{C_2H_5OH} : V_{H_2O}$=3 : 7
$V_{C_2H_5OH} : V_{H_2O}$=1 : 1
$V_{C_2H_5OH} : V_{H_2O}$=7 : 3
$V_{C_2H_5OH} : V_{H_2O}$=9 : 1

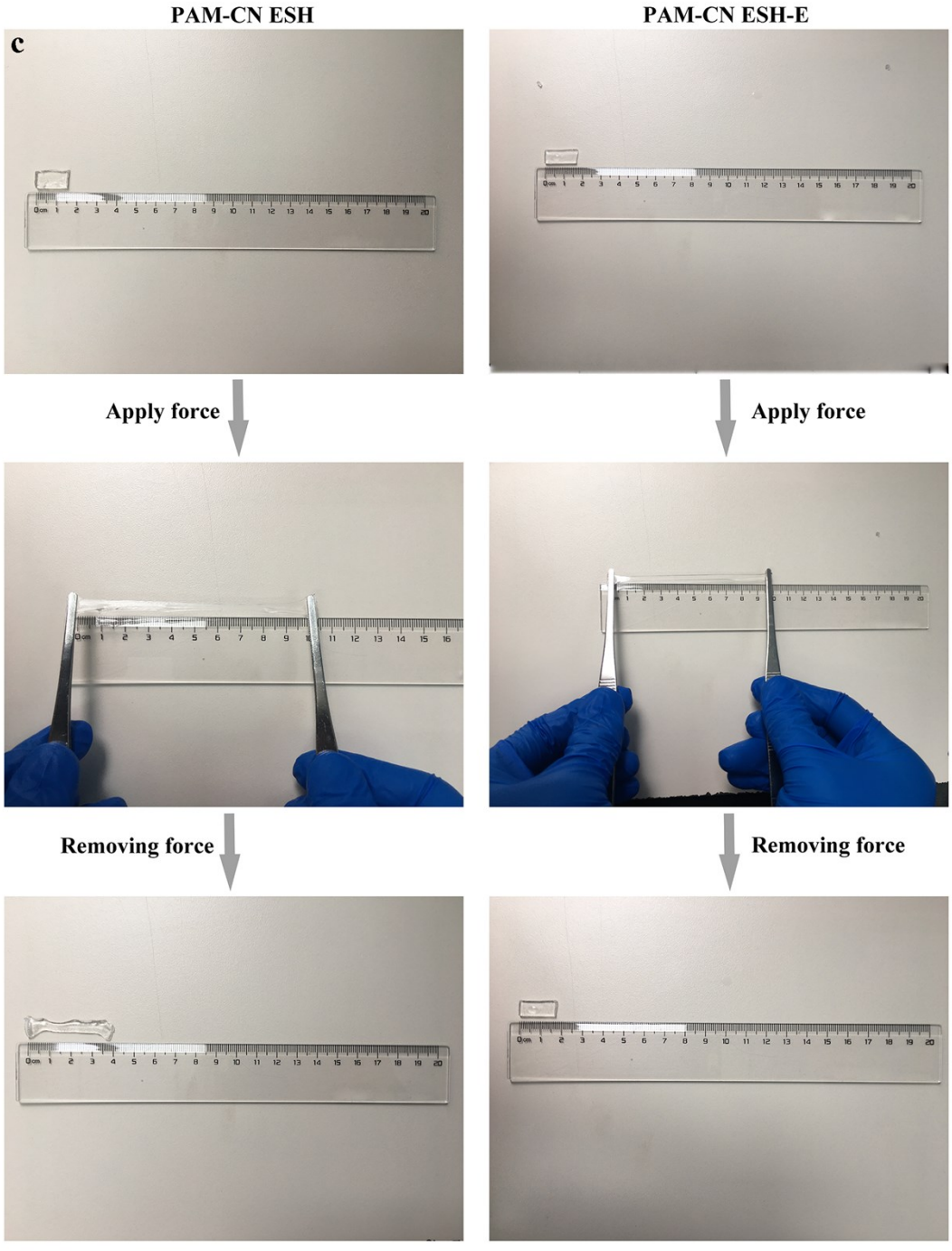

PAM-CN ESH
PAM-CN ESH-E
c
Apply force
Apply force
Removing force
Removing force

Fig. S2. (a) Swelling exhibition and (b) swelling ratio curve of PAM-CN ESH in different rations of water and ethanol; (c) The photographs of the PAM-CN ESH showing excellent tensile property.

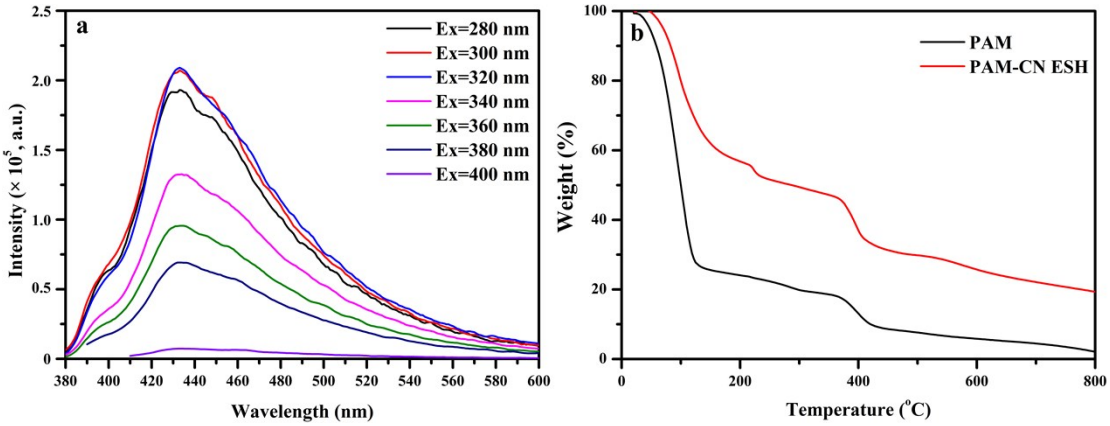


Fig. S3. (a) Fluorescence spectra of PAM-CN ESH at different excitation wavelengths ranging from 280 nm to 400 nm. (b) Thermogravimetric analysis curves (TGA) of PAM hydrogel and PAM-CN ESH.

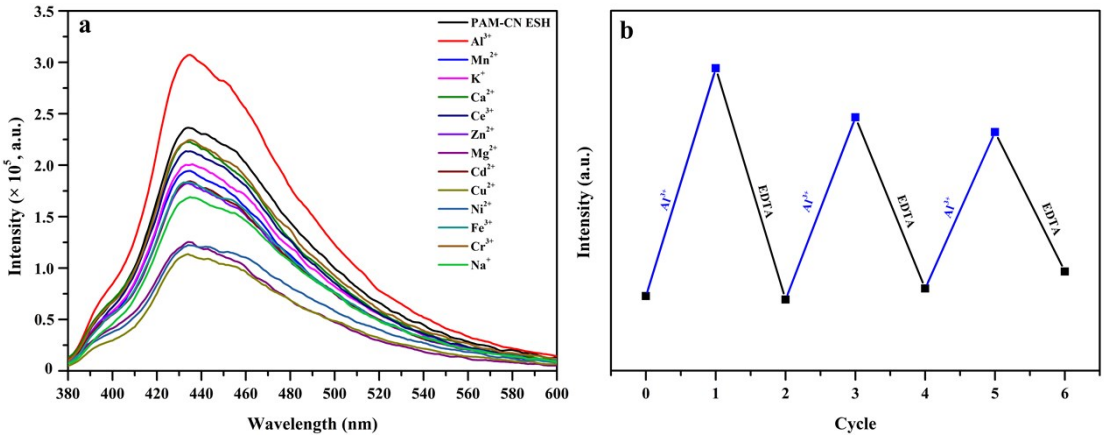


Fig. S4. (a) Fluorescence spectra (λ_{ex} = 320 nm) of PAM-CN ESH in presence of different metal ions (Al^{3+}, Mg^{2+}, K^{+}, Ca^{2+}, Ce^{2+}, Zn^{2+}, Mg^{2+}, Cd^{2+}, Cu^{2+}, Ni^{2+}, Fe^{3+}, Cr^{3+}, Na^{+}) in aqueous solutions ([Metal ions] = 5.00×10^{-5} M and T_{solu} = 25.00 ± 0.02 °C.); (b) Evaluation of the reversibility of PAM-CN ESH by Al^{3+} and EDTA.