

Supplementary Materials

Smart Thermomechanochemical Composite Materials Driven by Different Forms of Electromagnetic Radiation

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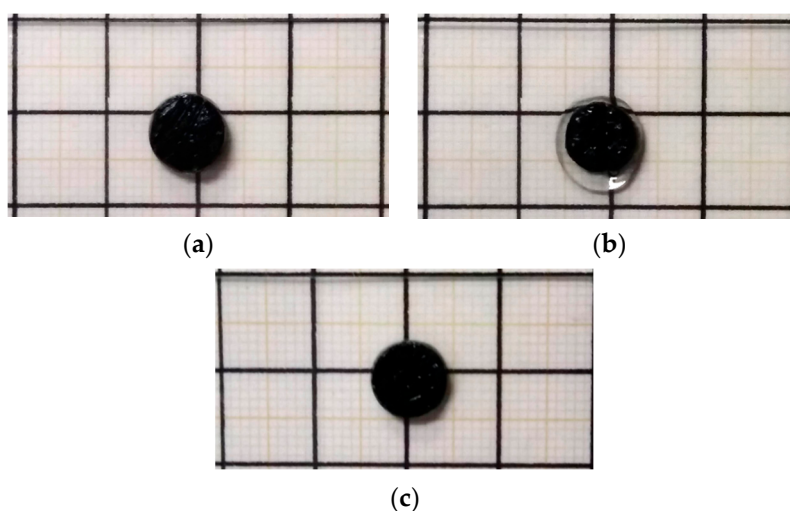
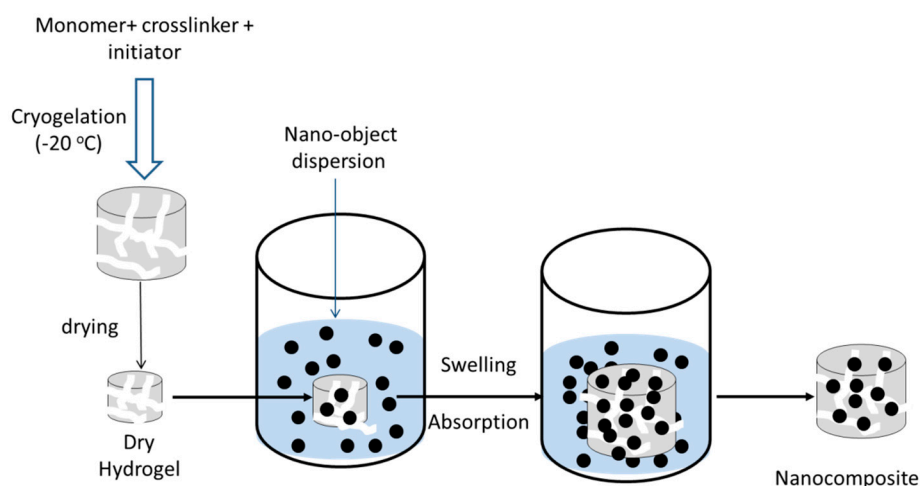
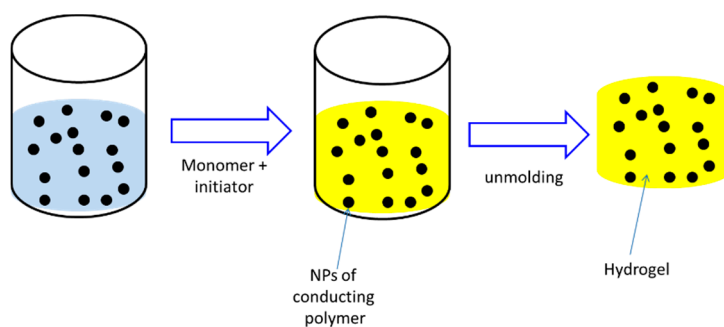


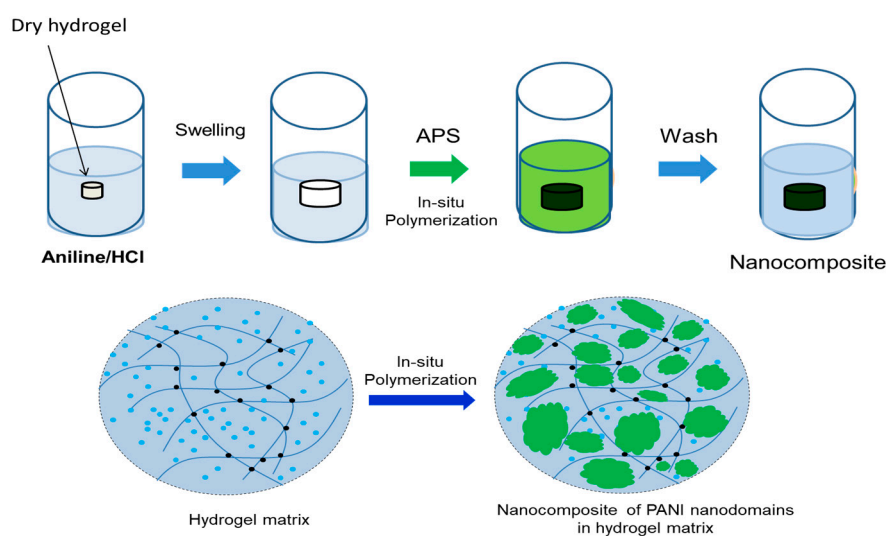
Figure S1. Effect of microwaves on the doped (protonated) nanocomposite (made by PIH) along the heating and cooling cycle. Photographs: (a) before irradiation ($T = 29.7\text{ }^{\circ}\text{C}$), (b) after microwave irradiation (30 s, 70 W) ($T = 38.9\text{ }^{\circ}\text{C}$), (c) after cooling in air ($T = 27.3\text{ }^{\circ}\text{C}$). Temperatures measured using a thermographic camera.



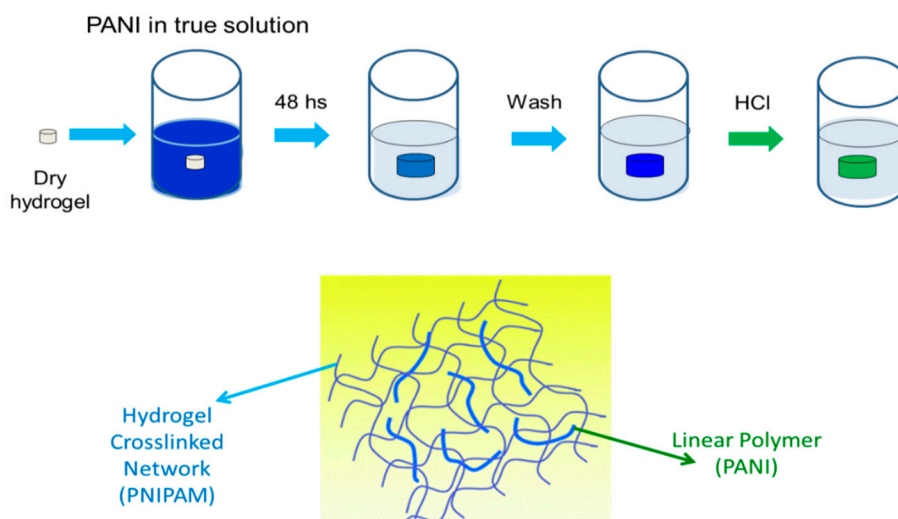
Scheme S1. Formation of the nanocomposite by loading nanoparticles inside macroporous hydrogels (INH).



Scheme S2. In-situ gelation of the smart hydrogel matrix around the dispersion of conductive polymer nanoparticles (GAN).



Scheme S3. In-situ polymerization of the conductive polymer inside the smart hydrogel matrix to produce a nanocomposite (IPH).



Scheme S4. PANI chains loading from solution into cPNIPAM hydrogel (AMH).



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