Electronic Supplementary Material (ESI) for RSC Advances.

Supporting Information (SI) for

Carbon Nanodots Crosslinked Photoluminescent Alginate Hydrogels

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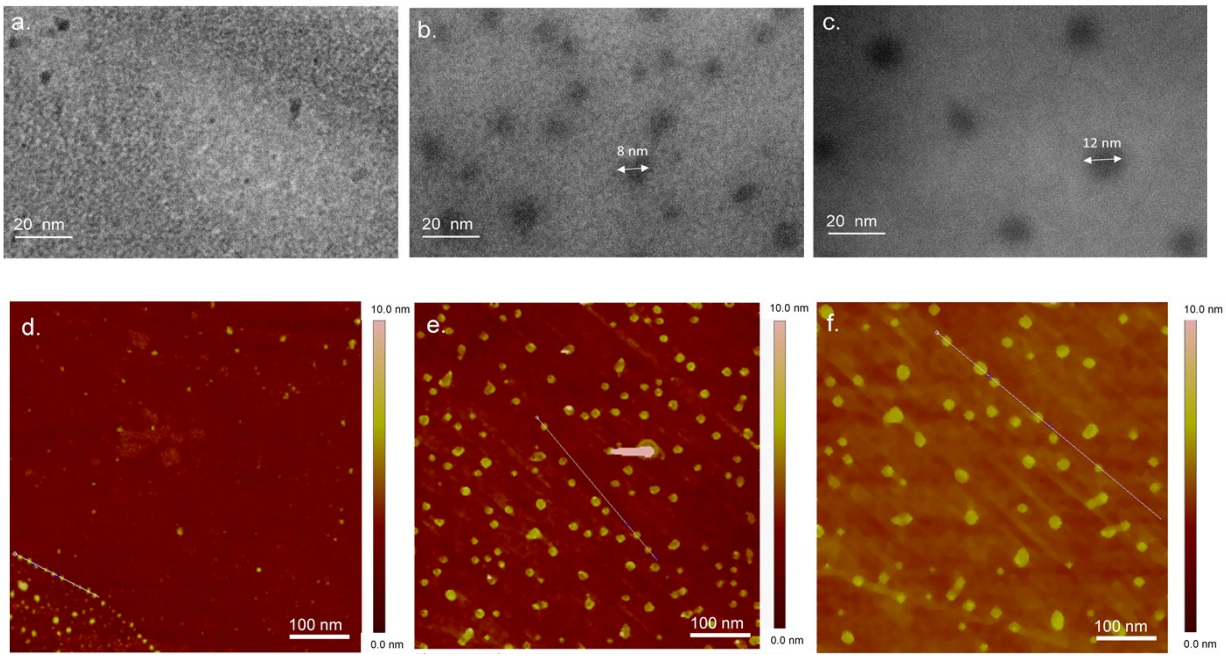


Figure S1. TEM and AFM images of m-CNDs (a. , d.), o-CNDs (b. , e.), and p-CNDs (c. , d.).

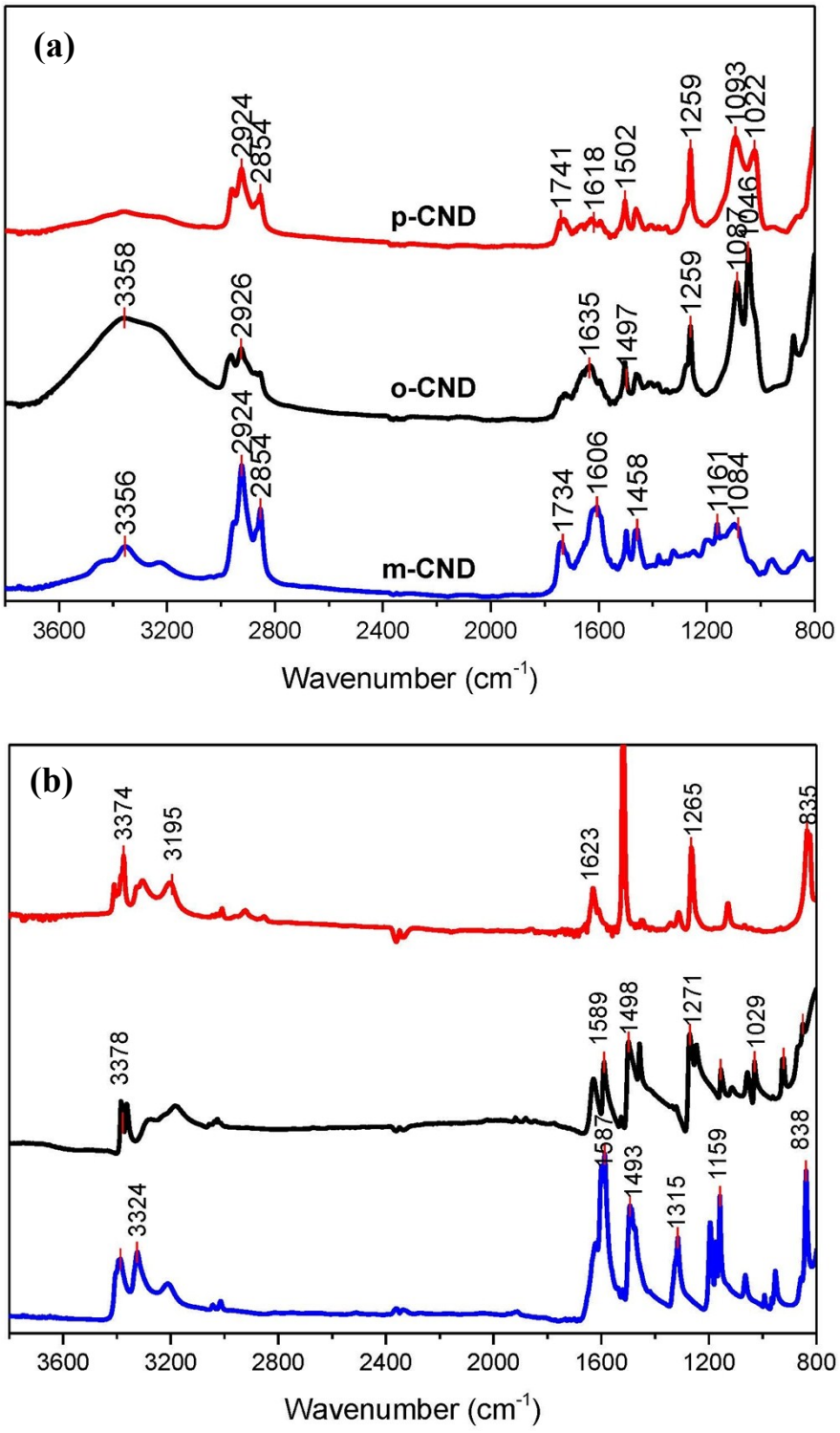
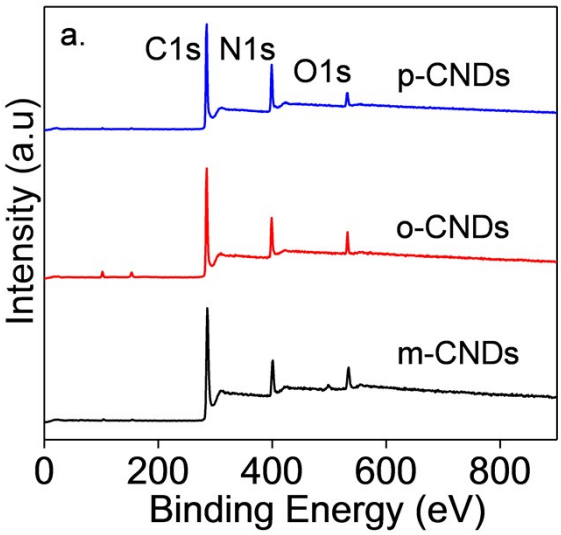


Figure S2. (a) FTIR spectra of CNDs obtained from o-CND, p-CND and m-CND, and (b) their corresponding starting materials, o, p, and m-phenylenediamine.



b.

Sample	C(%)	N(%)	O(%)
p-CNDs	74.22	20.93	4.94
o-CNDs	76.54	17.49	5.97
m-CNDs	77.24	15.84	6.92

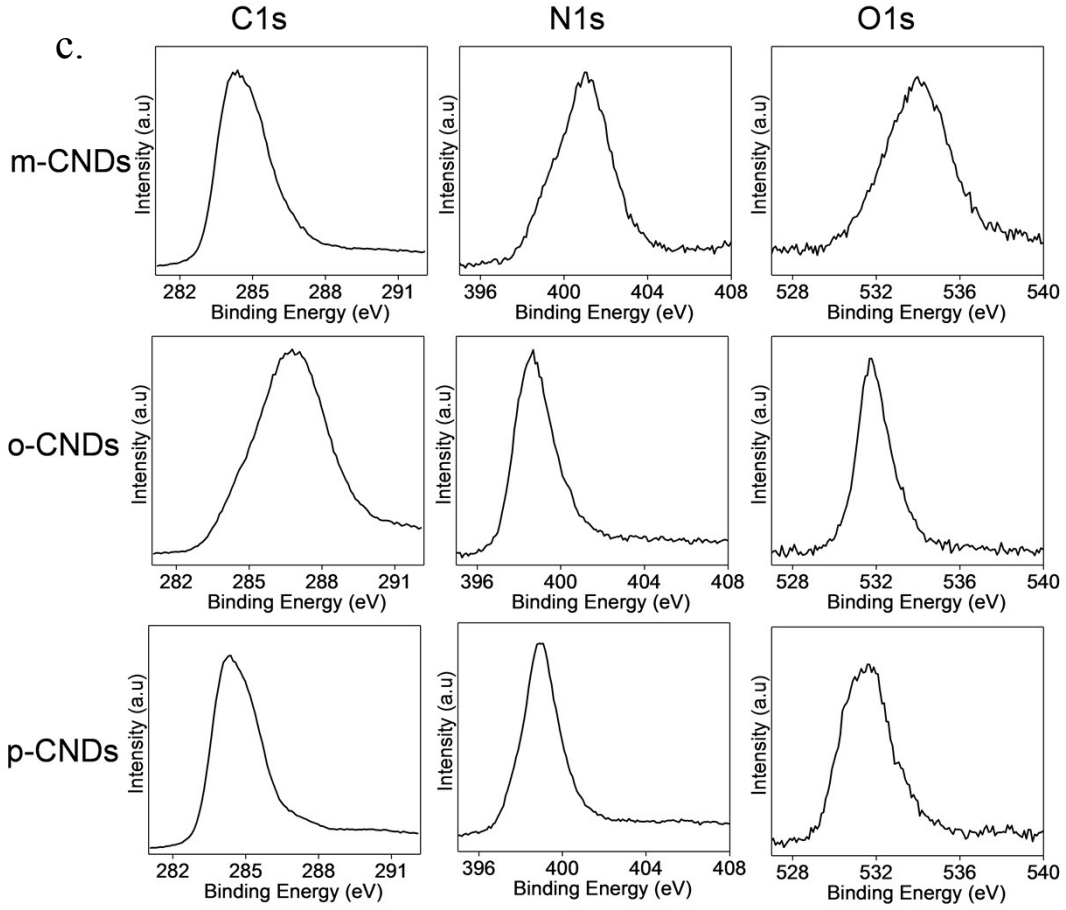


Figure S3 (a) The XPS spectra for the para, ortho and meta CNDs. (b) The relative content of C, N and O for para, ortho and meta CNDs determined by XPS analysis. (c) XPS binding energy spectra (C1s, N1s and O1s) of meta, ortho and para CNDs.

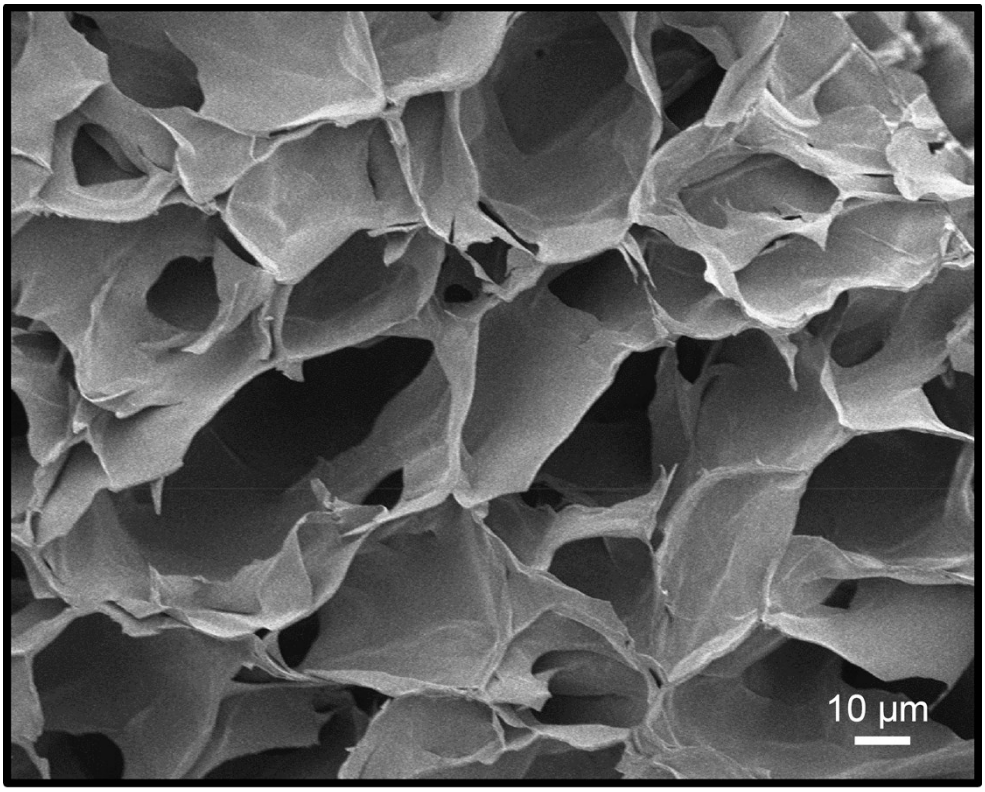


Figure S4. SEM images of chemically crosslink alginate gels with CNDs.

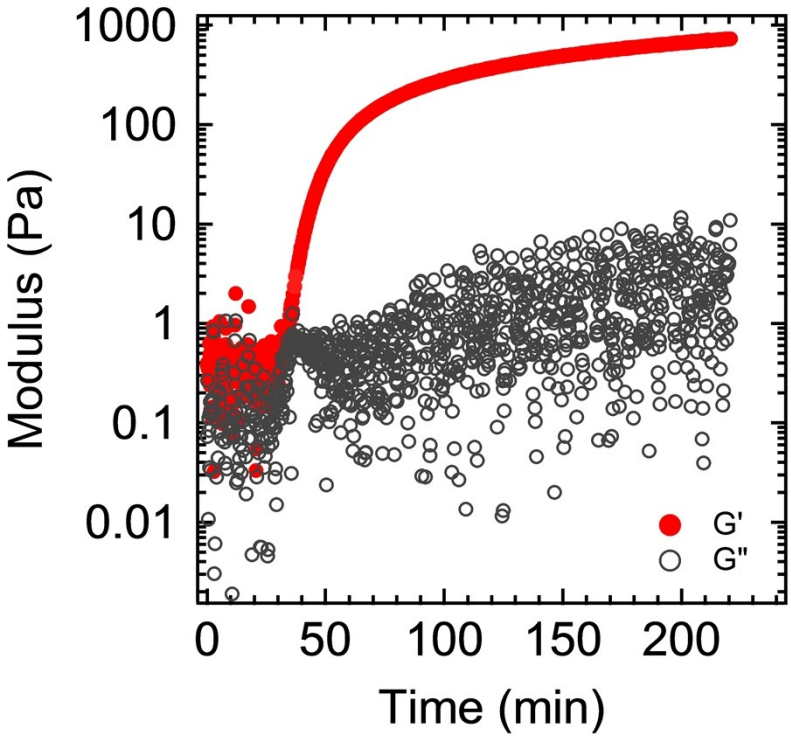


Figure S5. Evolution of elastic (G') and viscous modulus (G'') as a function of time during *in-situ* gelation of o-CNDs-alginate gel on a rheometer. The experiments were conducted at the frequency of 1 rad s^{-1} with strain amplitude of 0.1%.

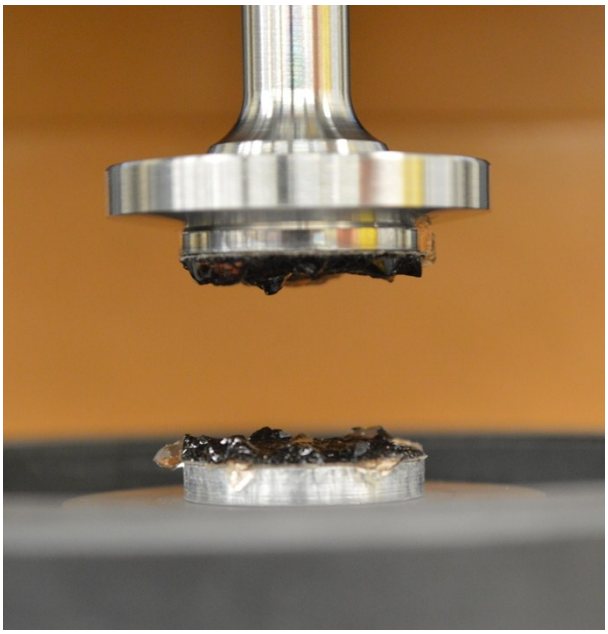


Figure S6. Image of a fractured gel after subjected to large amplitude oscillatory shear.

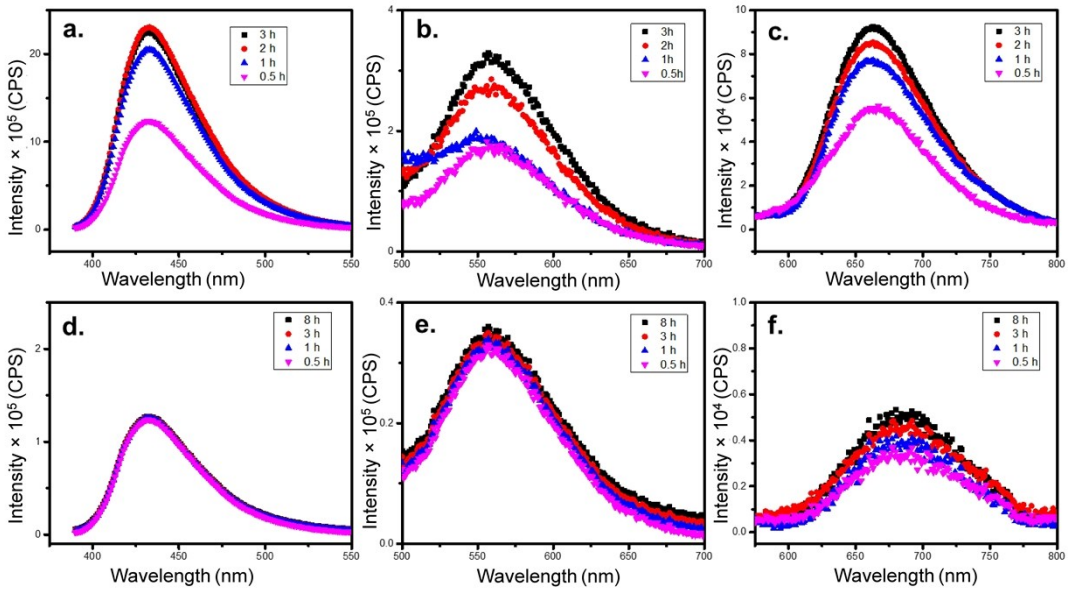


Figure S7. Leaching of CNDs from hydrogels in the phosphate-buffered saline solution as a function of time monitored by using fluorescence spectroscopy. Intensity for a), b), and c) ionically crosslinked alginate hydrogels with m-CNDs, o-CNDs and p-CNDs, respectively. d), e), and f) CNDs crosslinked alginate hydrogels with m-CNDs, o-CNDs and p-CNDs, respectively.

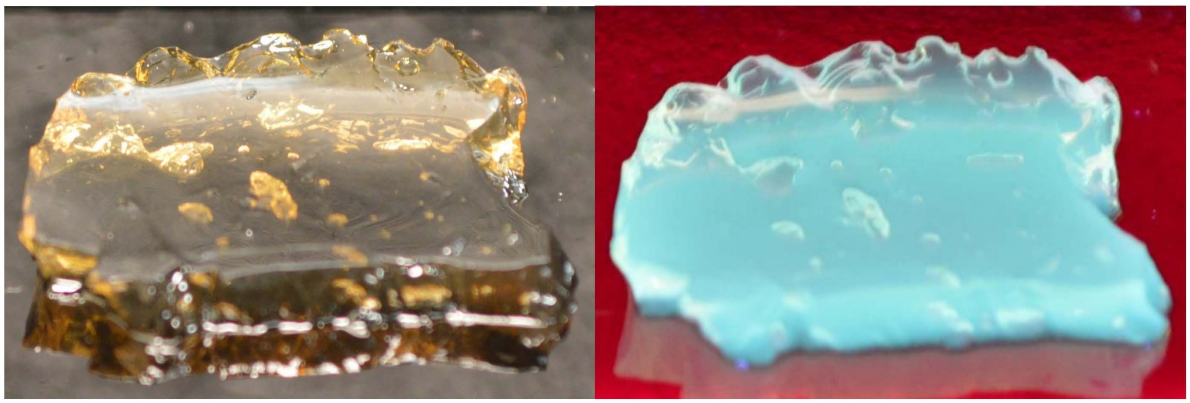


Figure S8. Images of CNDs crosslinked hydrogels after submerging 24 hr in a phosphate-buffered saline solution.

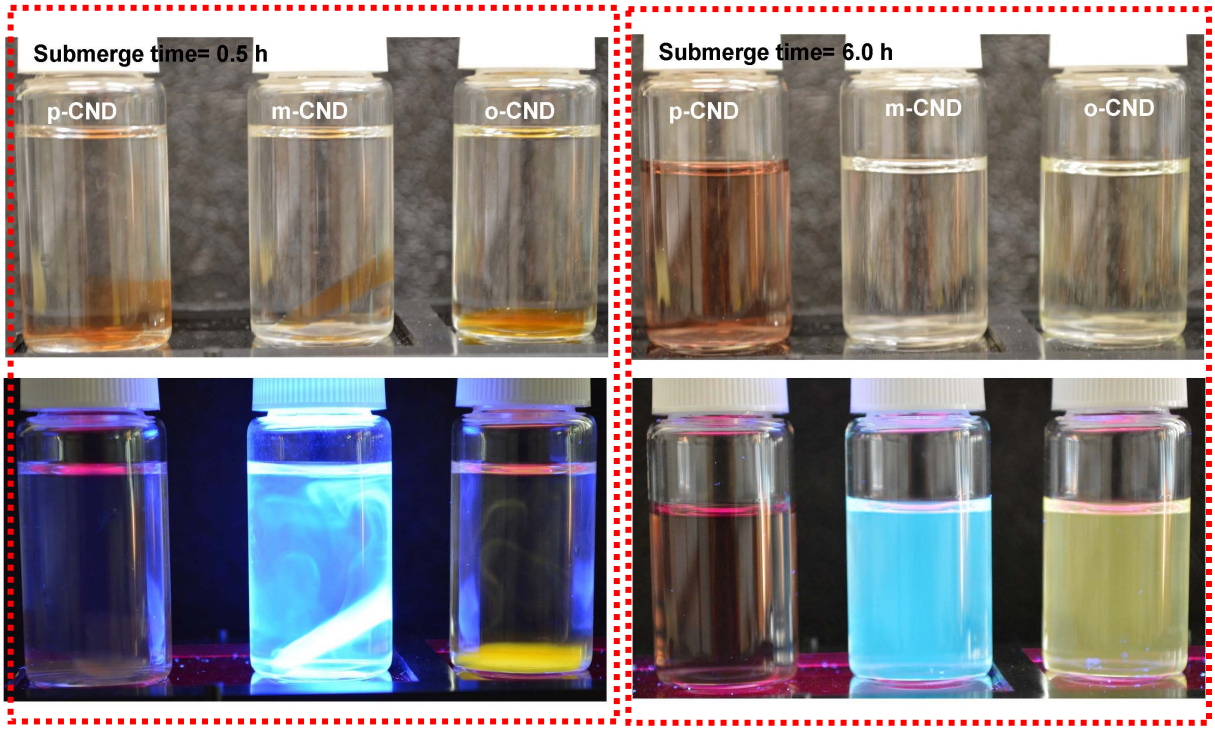


Figure S9. Images of ionically crosslinked alginate hydrogels doped with CNDs submerged in phosphate-buffered saline solution. Images under UV light clearly exhibit the CNDs leaching from the gels and gel deterioration. Top-pane shows the images for visible light, whereas, the bottom-pane are that for UV light excitation.