Supporting Information

Embedding Near-Infrared Fluorescent Single-Walled Carbon Nanotubes Within Freeform Fabricated Hydrogels via Continuous Digital Light Processing

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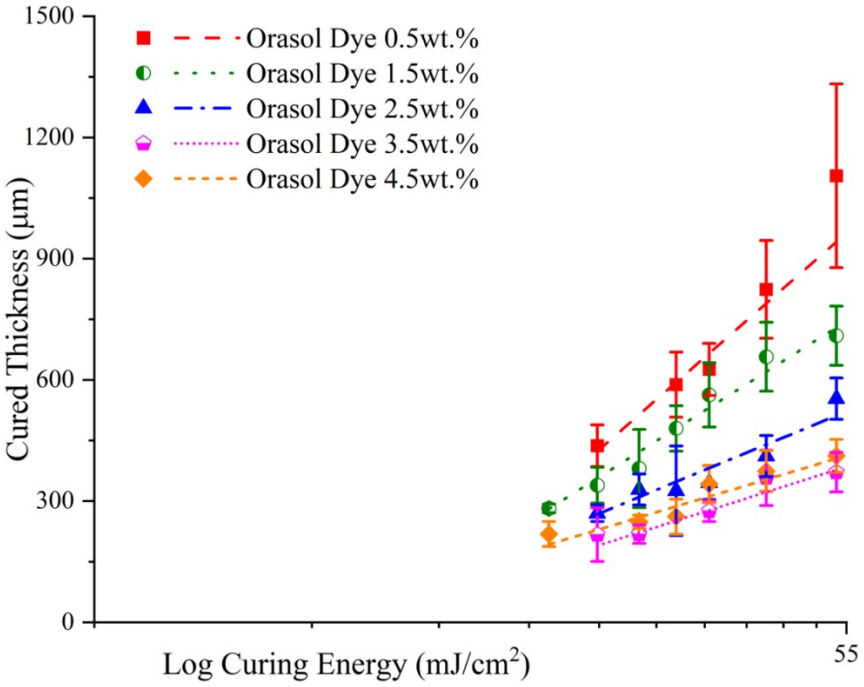

***Figure S1**: Hydrogel Curing Curve with different wt.% of Orasol Dye.*

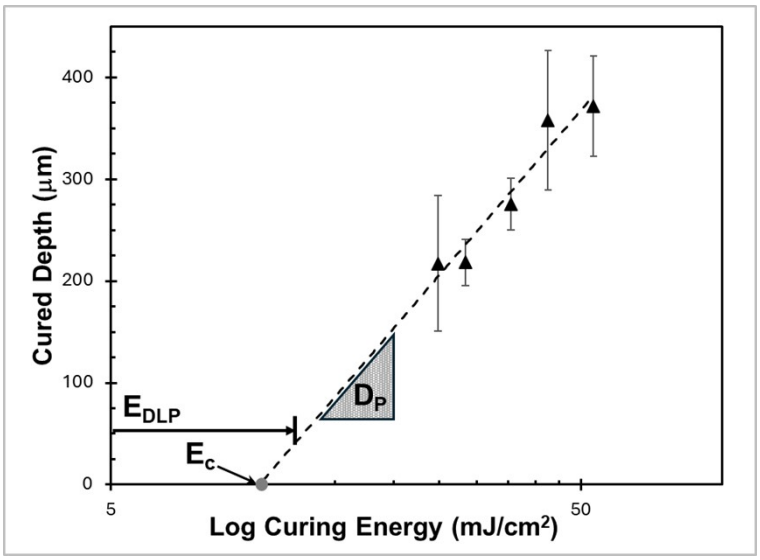

Figure S2*: A representative Curing Curve with Hydrogel 36-40 formulation to show the procedure of estimating the depth of penetration (D_p) and the critical energy (E_c).*

Table S1: *Curing Parameters with the variation of Orasol Dye Concentration at 36-40 hydrogel formulation. The gray highlighted row was used in the remaining hydrogel formulations.*

Orasol Dye Concentration in 36-40 Hydrogel	Curing Parameters	
	Critical Energy, Ec	Light Penetration Depth, Dp
0.5 wt.%	16.01 mJ/cm^2	872.58 μm
1.5 wt.%	12.53 mJ/cm^2	510.65 μm
2.5 wt.%	11.80 mJ/cm^2	343.35 μm
3.5 wt.%	10.35 mJ/cm^2	233.51 μm
4.5 wt.%	9.00 mJ/cm^2	232.99 μm

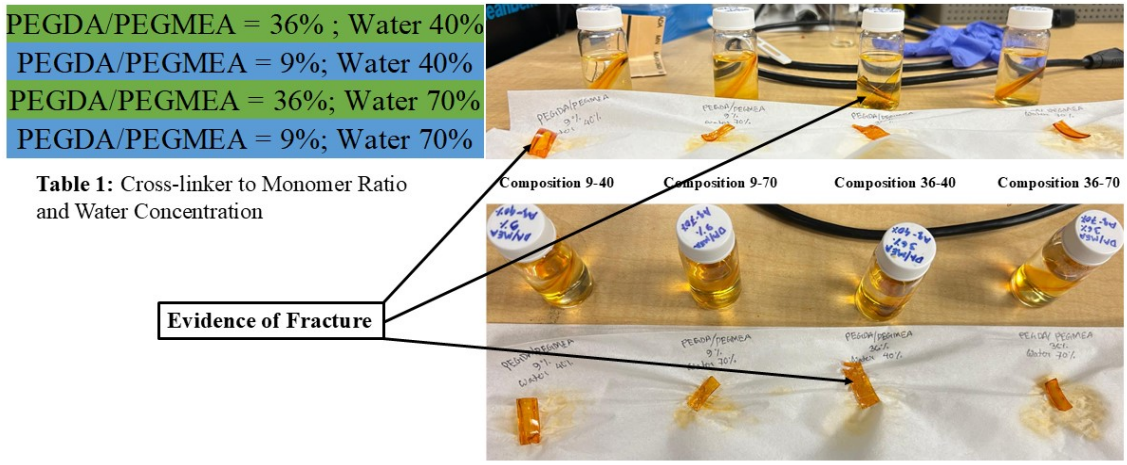

***Figure S3**: Durability Experiments and evidence of fracture in both hydrated and dehydrated conditions with composition 36-40 and 9-40 neat hydrogel.*

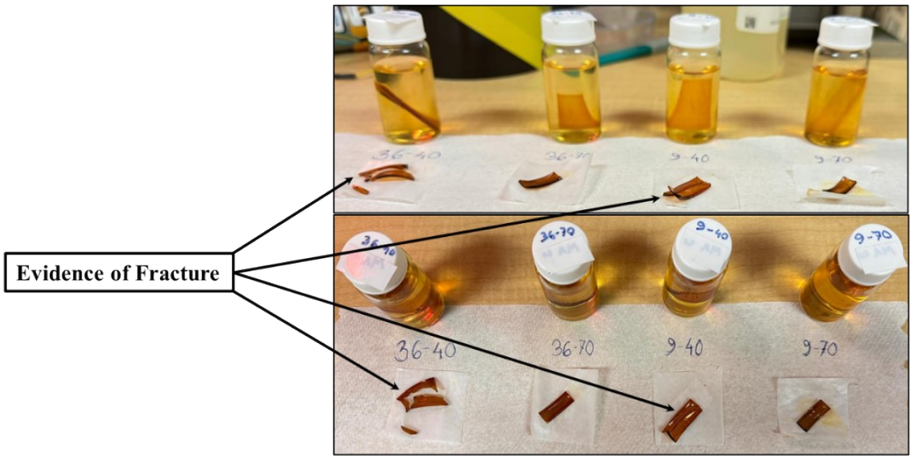

***Figure S4**: Durability Experiments and evidence of fracture in hydrated conditions after switching with 36-40 and 9-40 SWCNT-infused hydrogel.*

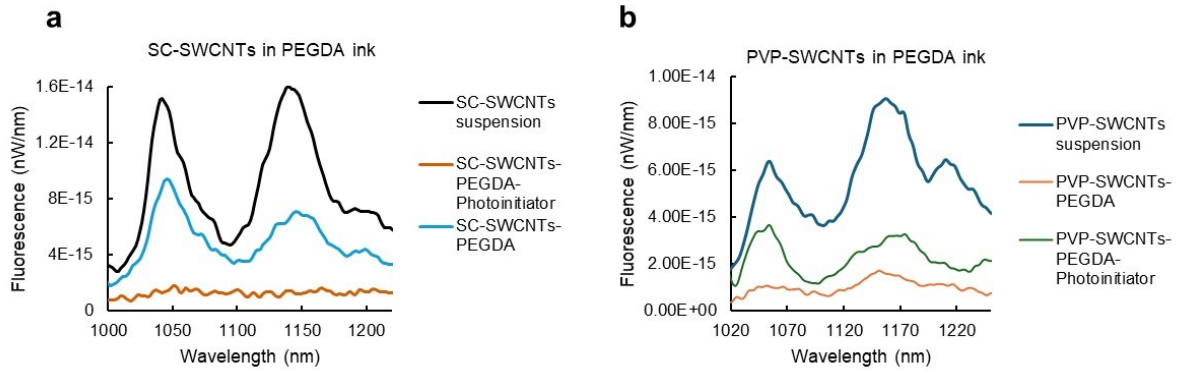

***Figure S5**. Fluorescence measurements on SWCNT suspensions with PEGDA and photoinitiator; a) SC-SWCNTs suspension and the the mixture after steps for formulation of PEGDA-based ink (addition of crosslinker and photoinitiator); b) PVP-SWCNTs suspension and the mixture after steps for formulation of PEGDA-based ink (addition of crosslinker and photoinitiator).*

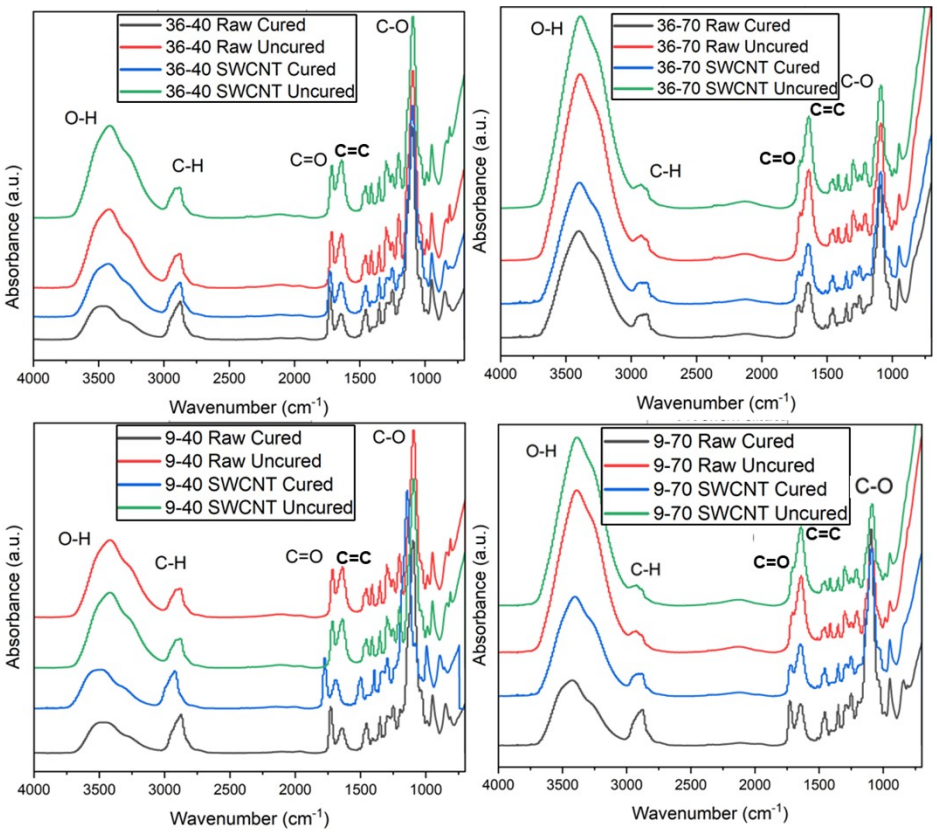

Figure S6: *FTIR characterization plots of all Hydrogel formulations, Neat (denoted here as "Raw") and SWCNT-infused (denoted here as "SWCNT"). Tested samples included the uncured liquid ink (denoted here as "Uncured") and solid cured samples (denoted here as "Cured").*

Table S2*: Reduction of C=C (~1638 cm^{-1}) within the utilized hydrogel formulations due to curing of all Hydrogel Formulations.*

Formulation	Reduction in C=C Absorption (%)
Hydrogel 36-40 Neat	51.55
Hydrogel 36-40 SWCNT	43.41
Hydrogel 36-70 Neat	41.89
Hydrogel 36-70 SWCNT	34.00
Hydrogel 9-40 Neat	54.49
Hydrogel 9-40 SWCNT	45.30
Hydrogel 9-70 Neat	44.92
Hydrogel 9-70 SWCNT	34.99