

# PVDF Composite Membranes with Hydrophobically-Capped CuONPs for Direct-Contact Membrane Distillation

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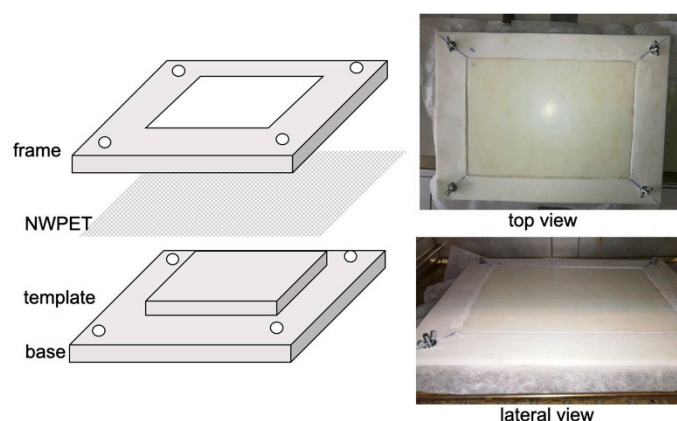
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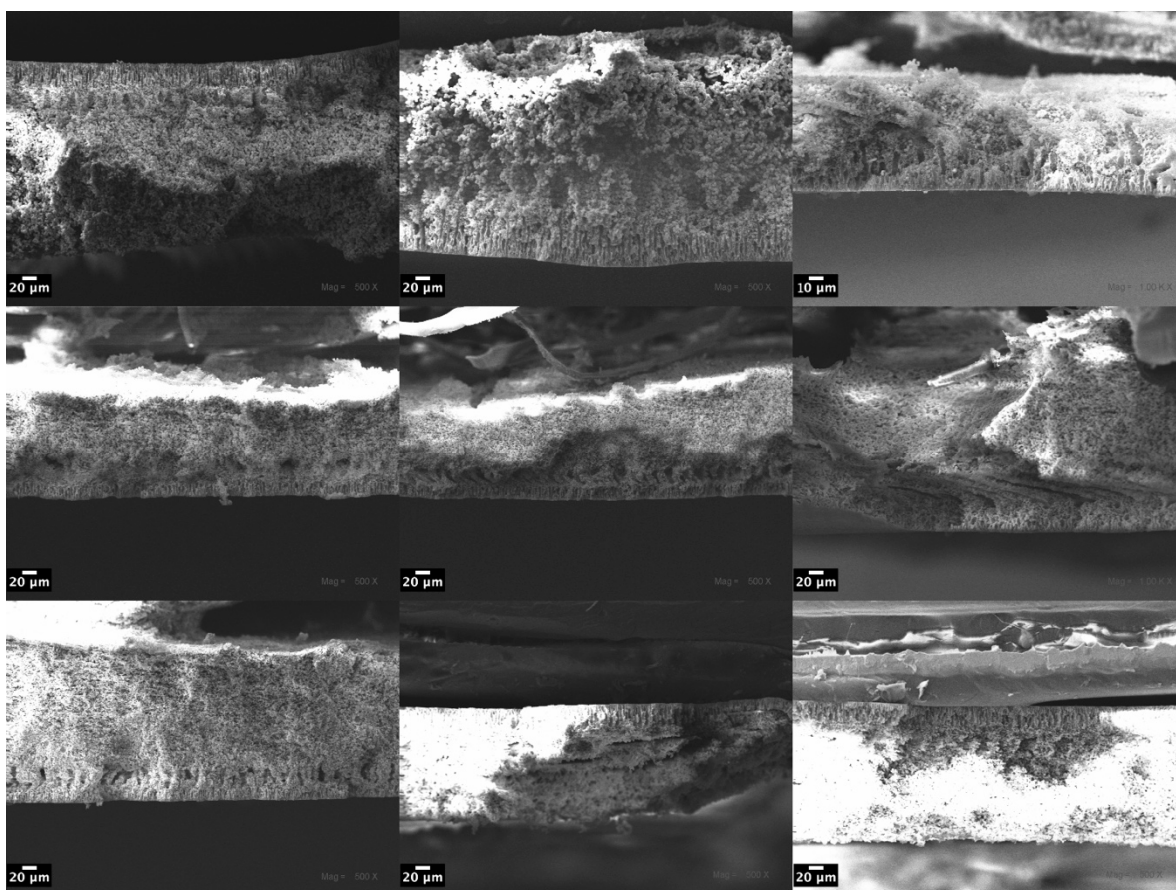
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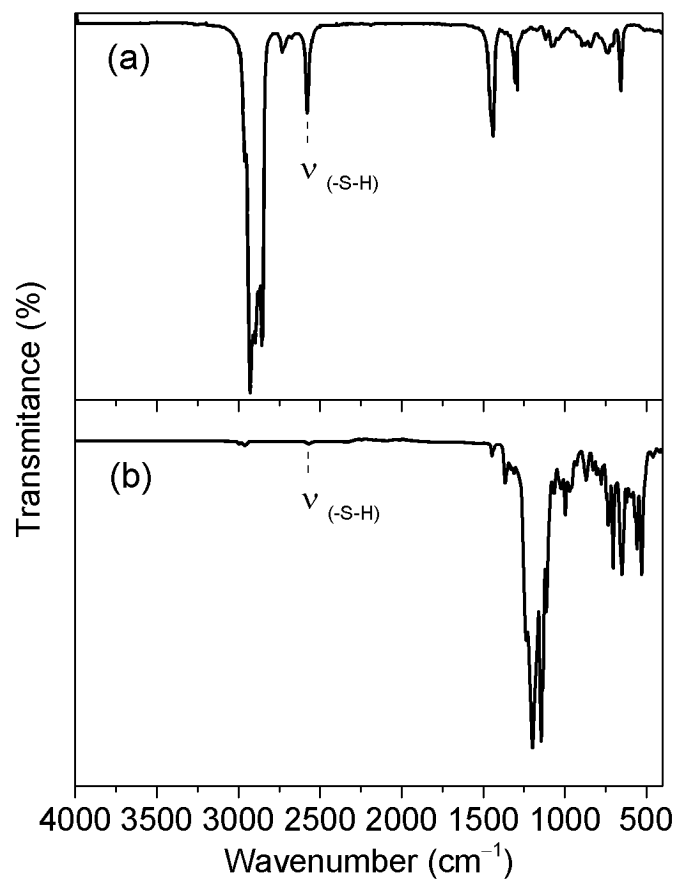
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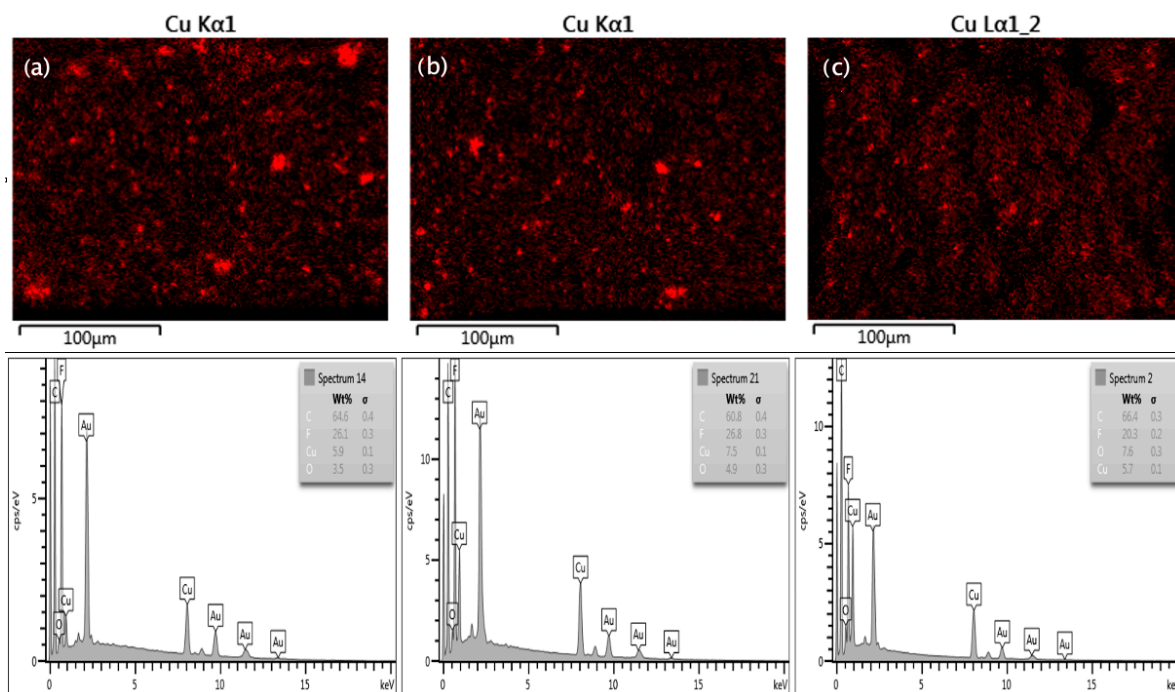
**Figure S1.** PTFE scaffold of 210 mm × 297 mm, for preparing PVDF composite membranes. Right: montage set-up of the hand-made PTFE device to prepare the membranes. Left: top and lateral view of prepared membranes.



**Figure S2.** Cross-section SEM micrographs of prepared membranes with different types of nanoparticles at different wt%. First row: CuONPs; second row: CuONPs@CH; third row CuONPs@CF. Nanoparticle concentration, from left to right, 2%, 5% and 10%. Thickness=  $240 \pm 40$   $\mu\text{m}$ .



**Figure S3.** FT-IR spectra of (a) n-octanethiol and (b) 1H,1H,2H,2H-perfluorodecanethiol.



**Figure S4.** EDS spectrum of nanoparticles at concentration of 10% CuONPs (a), CuONPs@CH (b) and CuONPs@CF (c).