

Electronic Supporting Information

Co-pelletization of a zirconium-based metal-organic framework (UiO-66) with polymer nanofibers for improved working capacity in hydrogen storage

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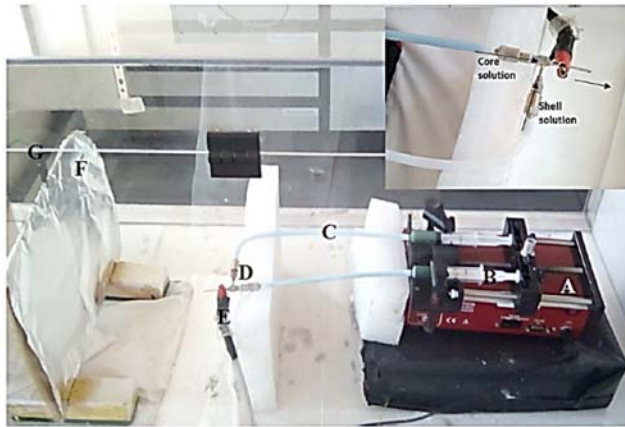
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- A – Automatic pump system
- B – Syringe
- C – Teflon tube
- D – Concentric needle
- E – Live wire (from voltage source)
- F – Aluminium foil (collector)
- G – Earth wire

Figure S1: Photograph of the co-electrospinning setup used to prepare core-shell nanofibers.

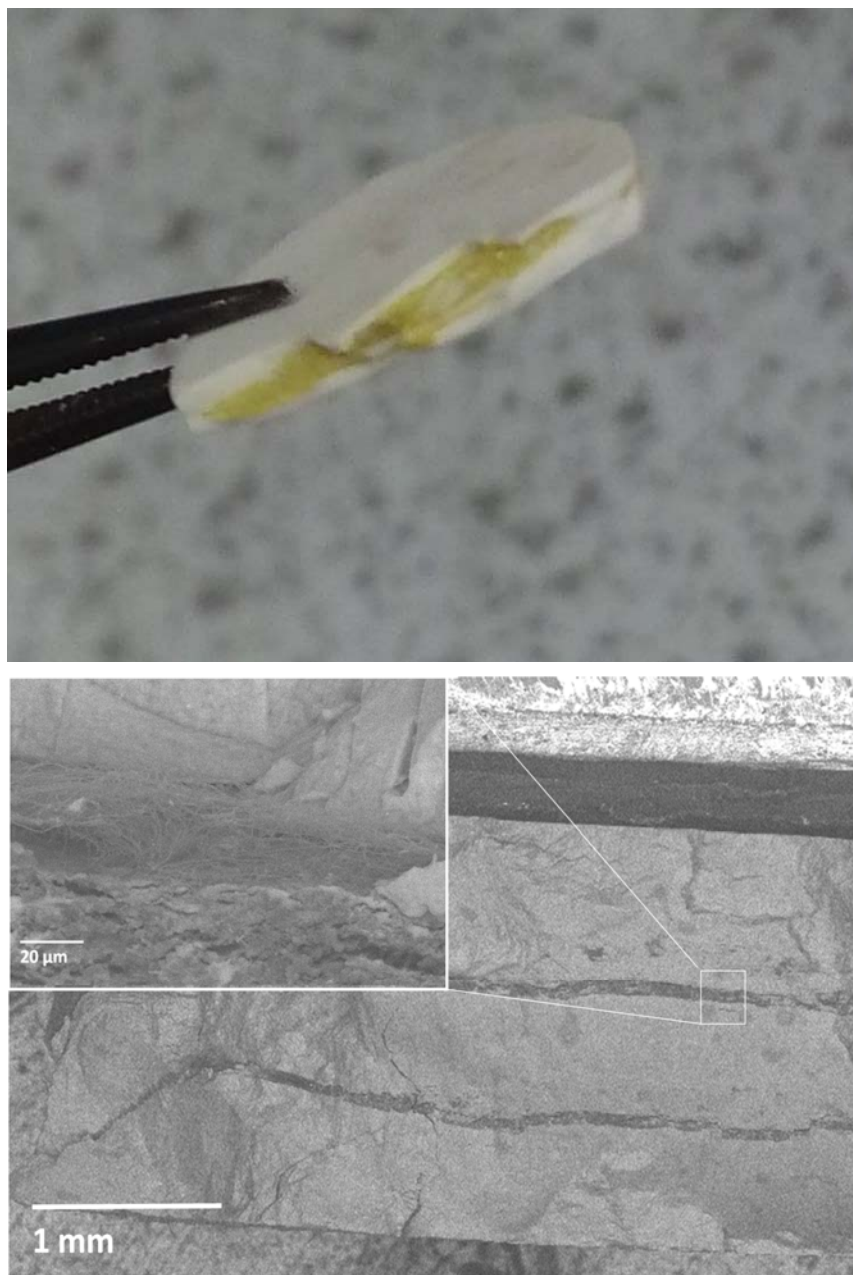


Figure S2: Cross-sectional images (bottom: SEM images, main image at 60X magnification and 2000X magnification for the insert) showing the structure of co-pelletized UiO-66/PIM-1 pellet containing 5 wt% PIM-1 nanofibers.

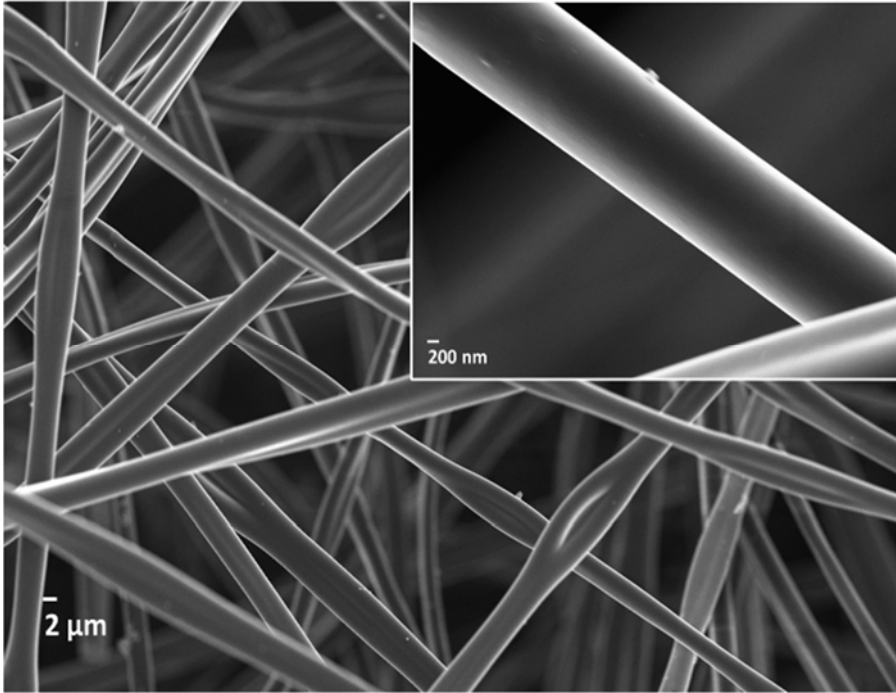


Figure S3: SEM image of electrospun PIM-1 nanofibers (main image at 10 000X magnification and 20 000X magnification for the insert)

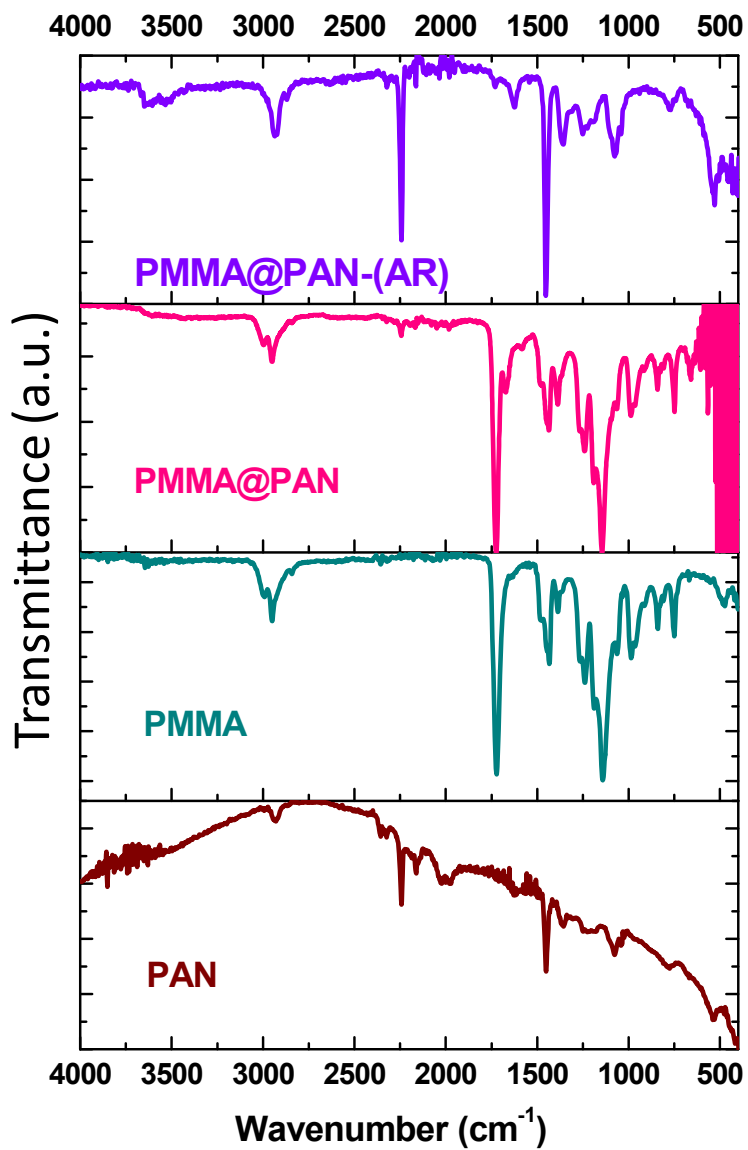


Figure S4: FTIR spectra of PMMA, PAN polymers and PMMA@PAN core-shell nanofibers. AR denotes after removal of PMMA.

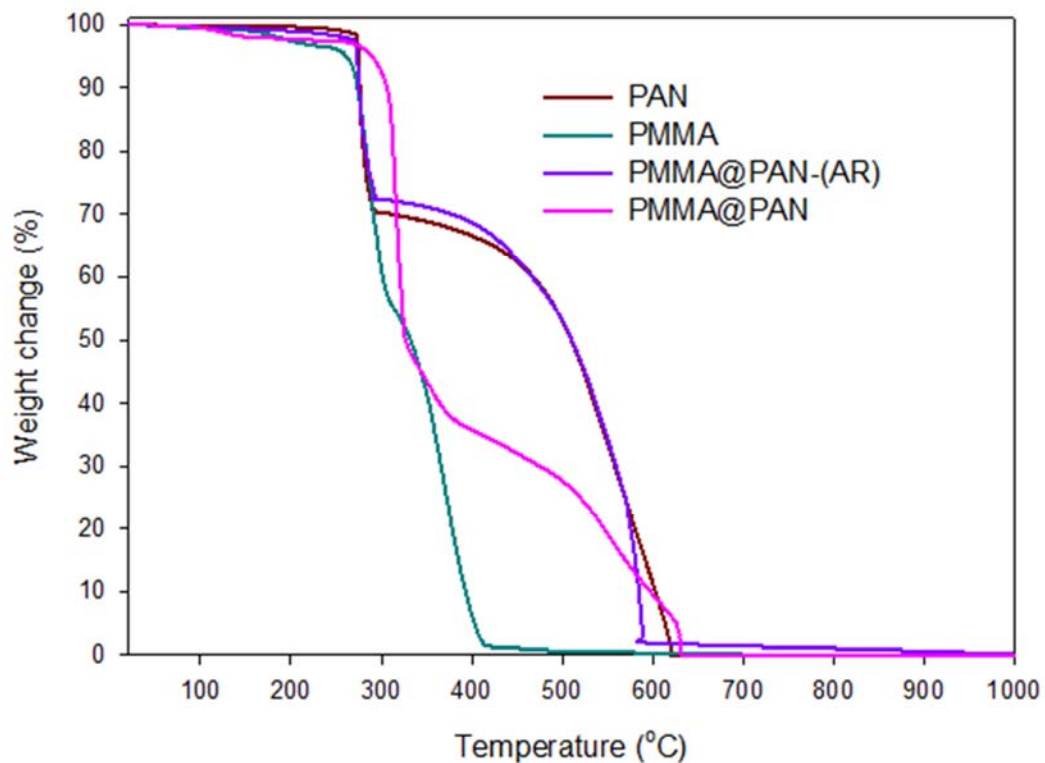


Figure S5: TGA thermograms obtained for PMMA and PAN polymers in comparison to PMMA@PAN and PMMA@PAN-(AR) nanofibers (AR = After removal of PMMA).

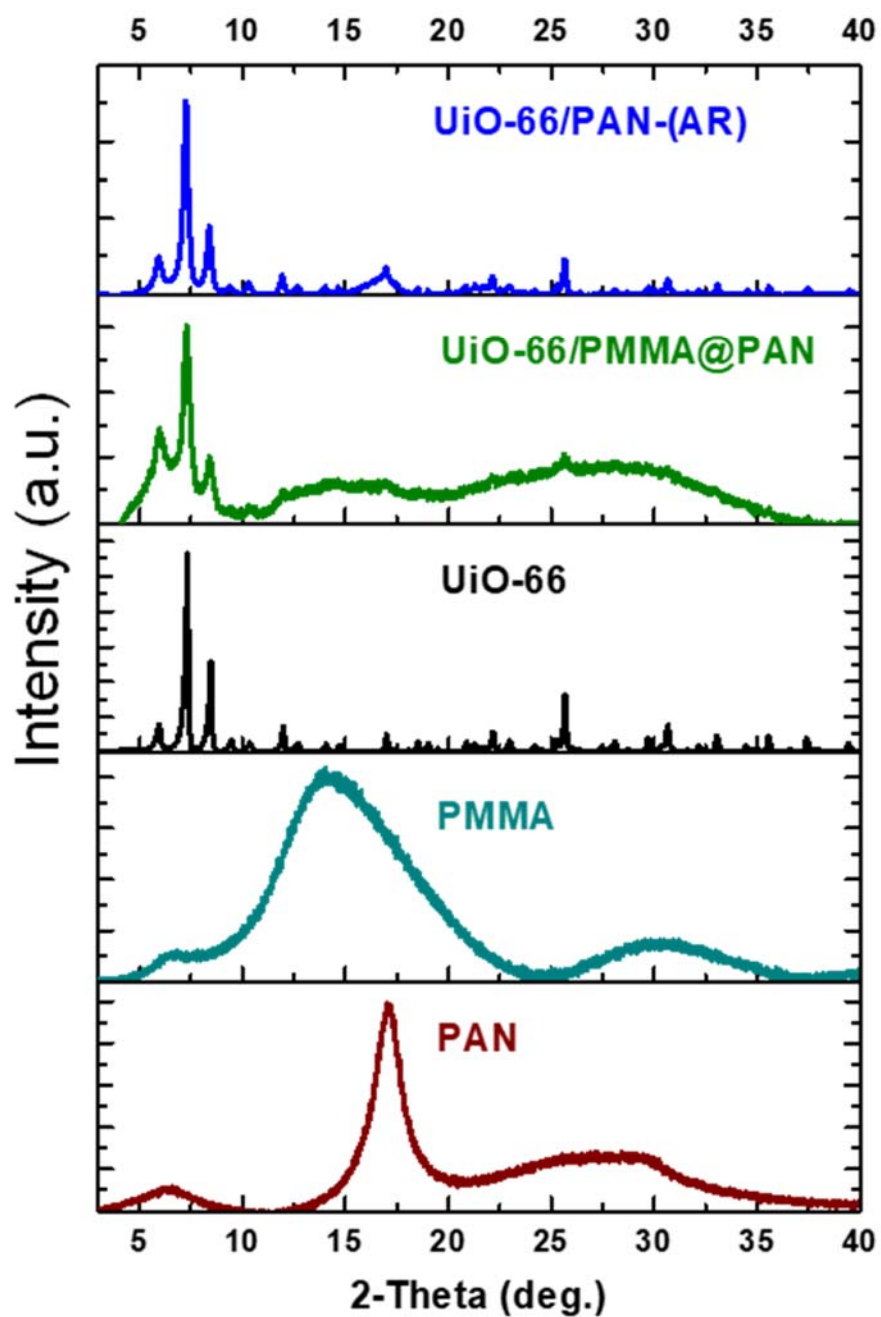


Figure S6: PXR D patterns obtained for UiO-66/PMMA@PAN and UiO-66/PAN(AR) nanofibers in comparison to pristine UiO-66, PMMA and PAN.

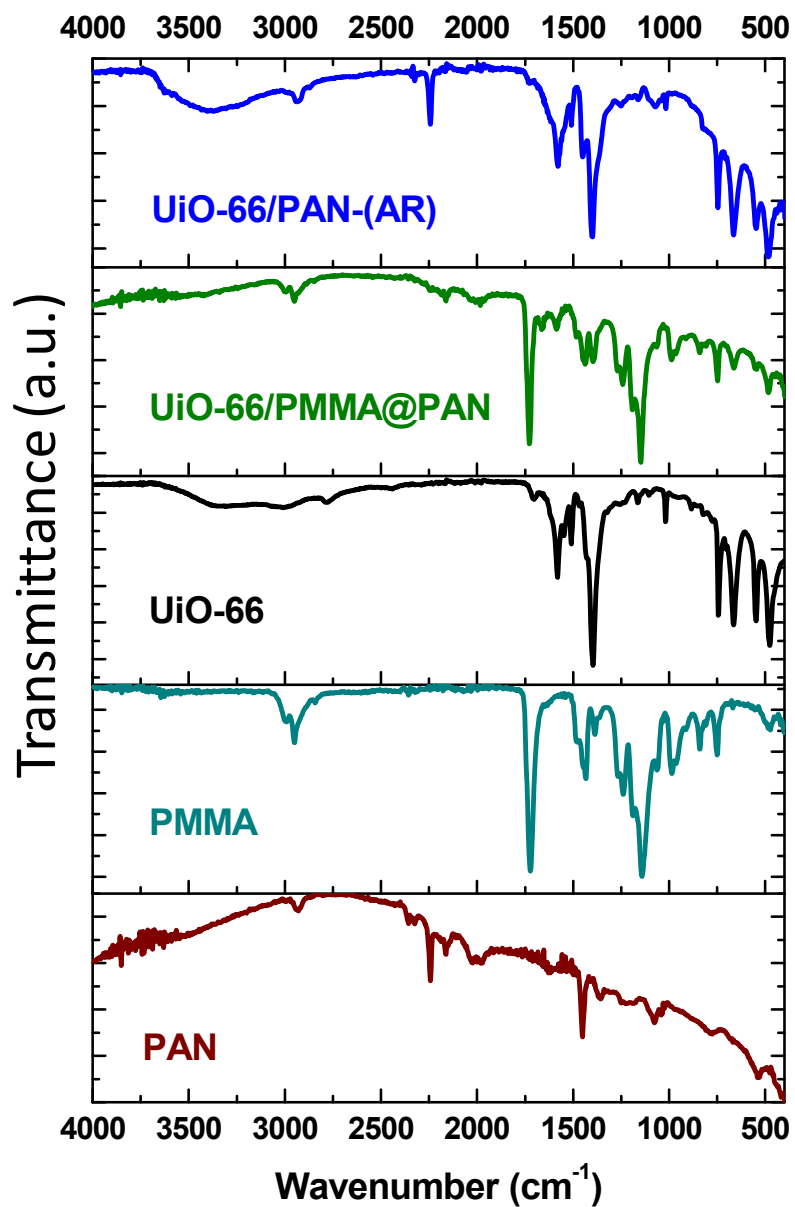


Figure S7: FTIR spectra of UiO-66/PMMA@PAN and UiO-66/PAN-(AR) nanofibers in comparison to that of pristine UiO-66, PAN, and PMMA.

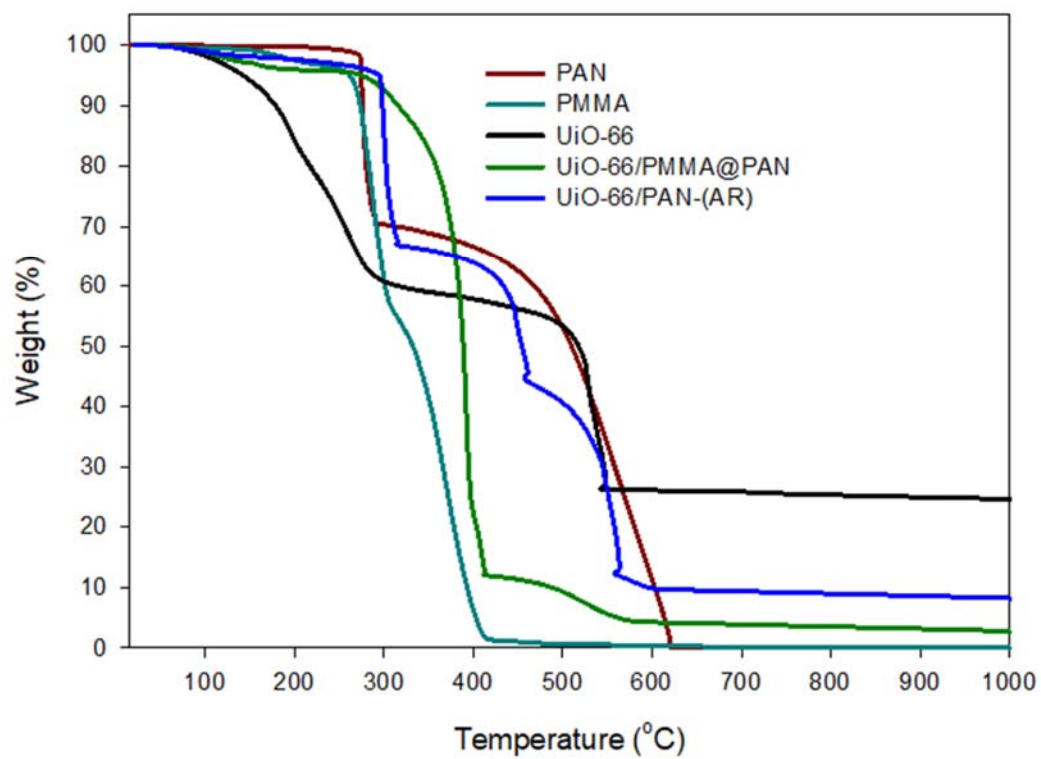


Figure S8: TGA thermograms obtained for pristine UiO-66 and UiO-66+nanofiber co-pellets.

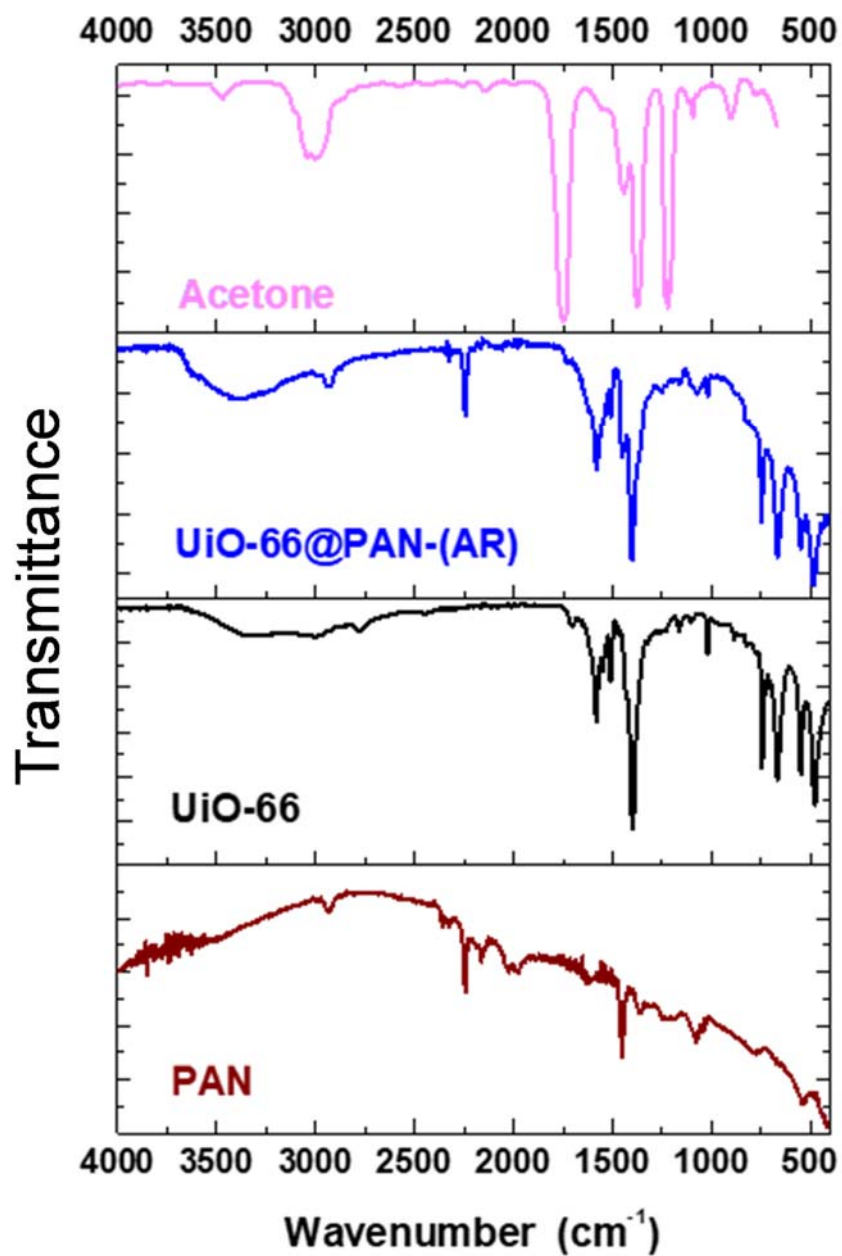


Figure S9: FTIR spectra of UiO-66/PAN-(AR) in comparison to pristine acetone, UiO-66 and PAN to elucidate the presence/absence of acetone in the UiO-66/PAN-(AR) nanofibers.

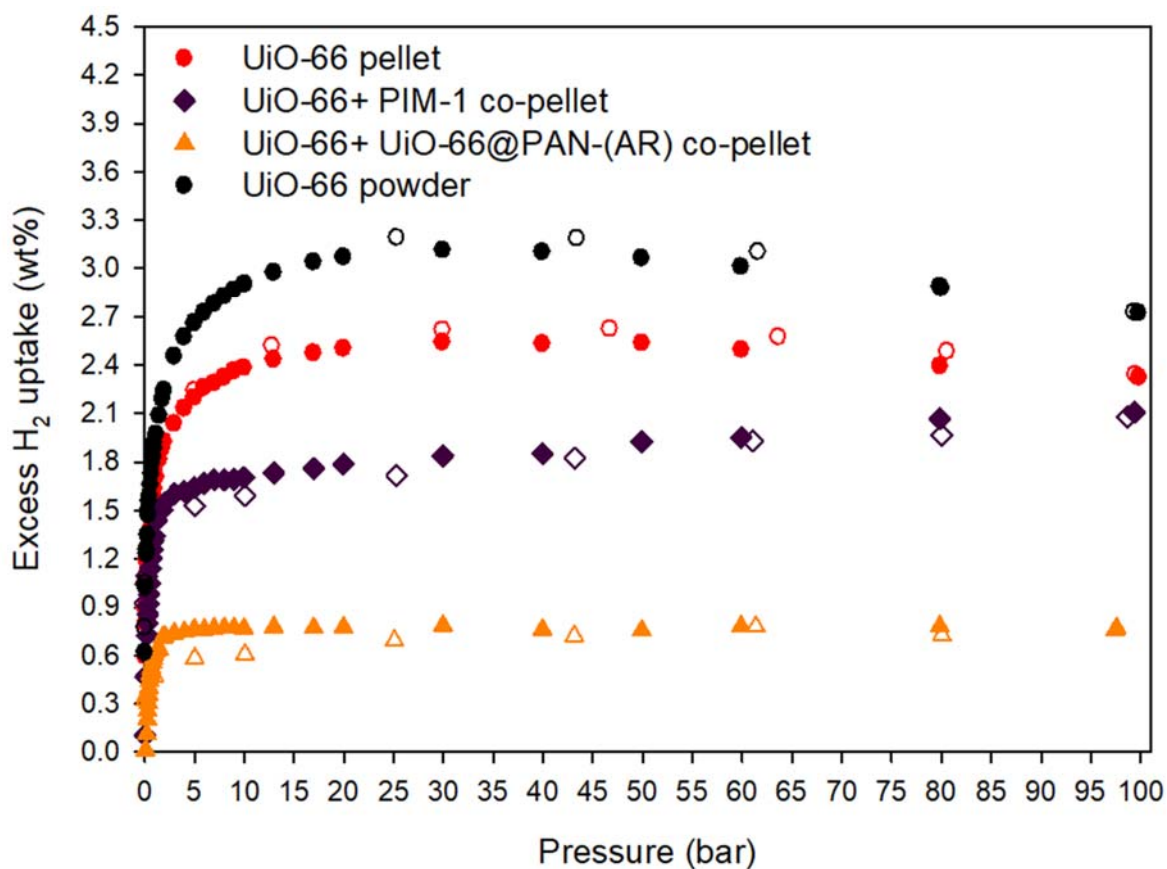


Figure S10: Excess H₂ adsorption/desorption isotherms at 77 K and up to 100 bar obtained for co-pelletized UiO-66/nanofiber composites. The open symbols represent desorption isotherms